TEXTILE WORLD

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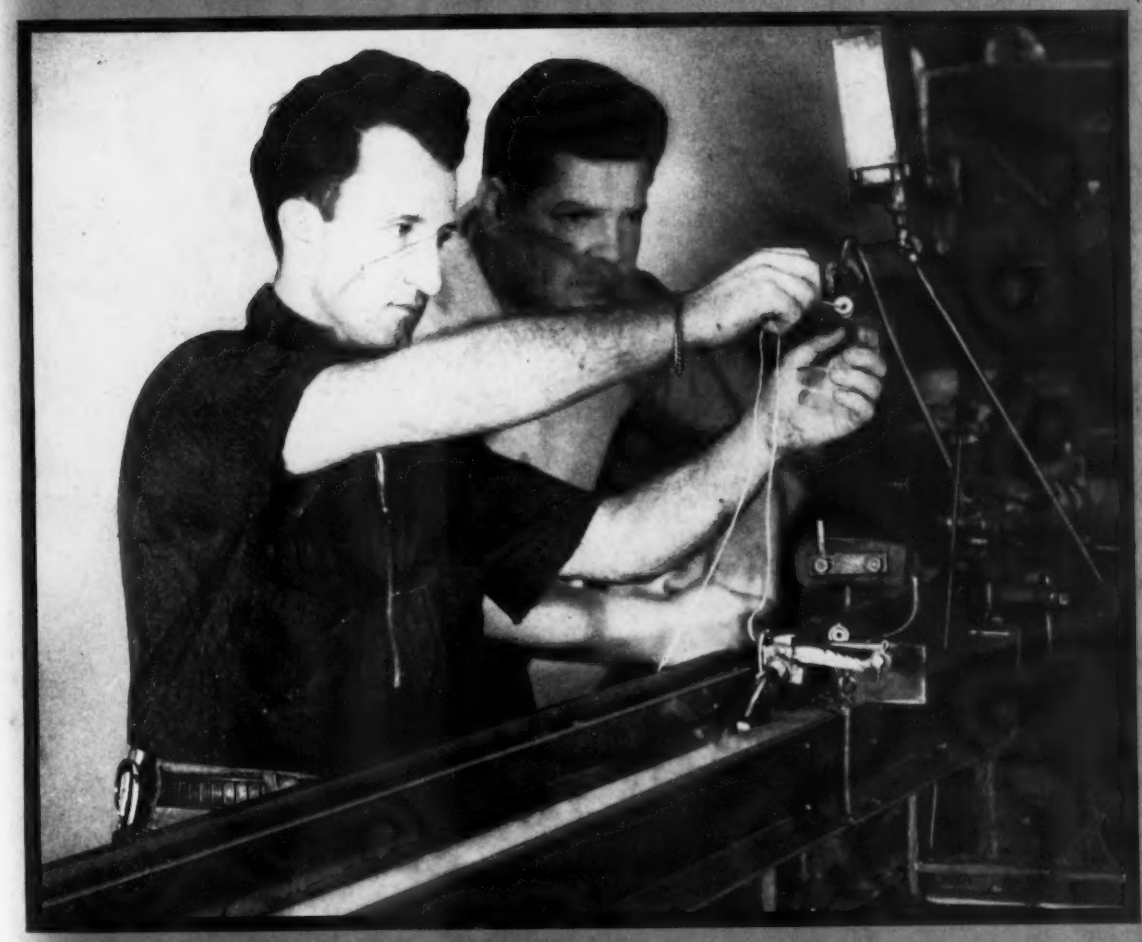
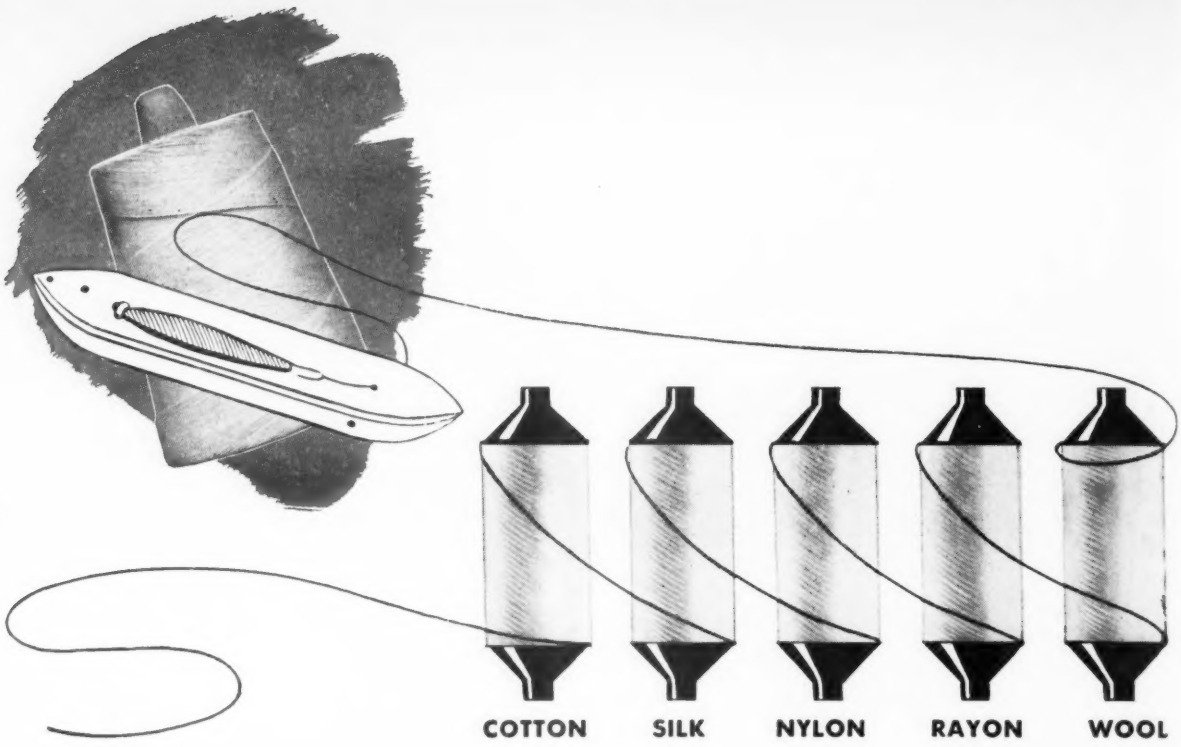


Bigelow-Sanford's TRAINING METHODS

Page 103

THE MARSHALL PROGRAM . . . . . Page 119



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TWENTY-NINE YEARS' NATIONWIDE EXPERIENCE IN INDUSTRIAL AND TEXTILE DEVELOPMENT

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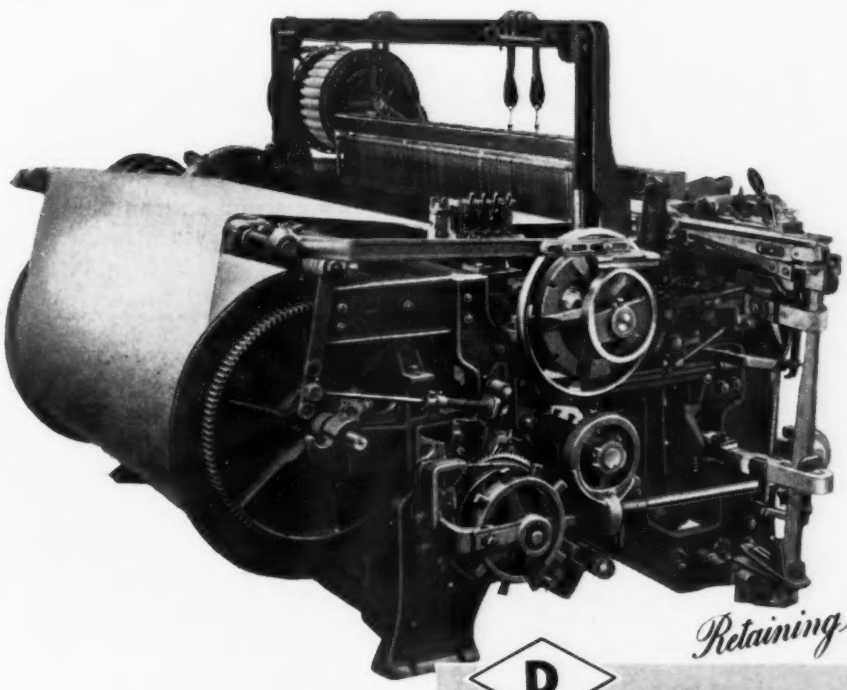

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TABLE OF CONTENTS

Classified According to Reader Interest

← MILL DEPARTMENTS — FIBER → DIVISIONS

YARN PRODUCTION	WEAVING	KNITTING	FINISHING	ENGINEERING	MISCELLANEOUS	FEATURE ARTICLES	PAGE	COTTON	SYNTHETICS	WOOL	MISCELLANEOUS
Y	W	K	F	E	M	KNOWLEDGE Is Power (Editorial)	4	C	S	W	M
Y	W	K	F	E	M	TRAINING for All at Bigelow-Sanford	103	C	S	W	M
				E		Metallizing Useful in MACHINE SHOP	106	C	S	W	M
		K	F			KNIT GOODS Bleached Continuously	108	C			
Y	W				M	Charts Aid Computing SPOOLER'S TASK	110			W	
Y					M	Ends-Down Tests Limelight Poor SPINNING	112	C			
	W					Loom Adjustment for RAYON WEAVING	114		S		
			F		M	Gives Data on CONTINUOUS DYEING	116	C	S		
			F		M	DYE Behaviour Varies on Chlorinated Wool	118			W	
Y	W	K	F	E	M	The MARSHALL Program	119	C	S	W	M
			F			Minimum Runs Desired in NAPPING Flannel	131	C			
		K			M	KNITTED FABRIC Base for Fancy Patterns	132	C	S	W	M
	W			E		Georgia Mill Reports on 48-in. Loom BEAM	135	C	S		
			F		M	Much New Technology Disclosed at AATCC	139	C	S	W	M
		K				F. F. Machines Require Good LUBRICATION	143		S		
Y						Alabama Mill Men Tell CARDING Practice	145	C			
				E		POWER-FACTOR Improvement Will Cut Bill	149	C	S	W	M
Y	W	K	F	E	M	LABOR Policy Top Economic Factor, CTI Told	153	C	S	W	M
						KINKS AND SHORT-CUTS					
Y						Gage for Accurately Setting MULE Fallers	171			W	
	W					Removing Loop PICKERS Aided by Tool	172	C	S		M
	W				M	Table Used for Figuring WEIGHT of Yarns	172	C	S	W	M
			F			Detachable Box Base Useful for WET GOODS	172	C	S	W	M
Y	W					Racks for SPOOLS Save Space and Waste	174	C	S	W	M
				E		Suction Aids in Cleaning BALL BEARINGS	174	C	S	W	M
Y						Brace for Rod Prevents SHORT DOFFS	174			W	
	W					Time Saved in Picking DOUBLE LEASES	174	C	S	W	M
	W				M	Iron Bracket Aids in GLUING CARTONS	176	C	S	W	M
Y						Replace Bristles with BURNISHING WIRE	176	C	S		
	W					Prevents SELVAGE LOOPS	176	C	S	W	M
				E		Sheet-Metal CUTTER Turned by Hand Crank	176	C	S	W	M
Y						Vacuum-Stripping Plate Should Be BEVELED	178	C	S		
			F			PIN-DRYER Operation Aided by Signal Lights	178	C	S	W	M
						IN OTHER DEPARTMENTS					
Y						WORSTED Frame Has Rising Drafting Field	155			W	
			F			SWING GUIDER Has Stainless-Steel Frame	156	C	S		
	W		F	E	M	Surface TEMPERATURE Continuous Control	156	C	S	W	M
	W					Swiss WARP-TYING Machine Demonstrated	156	C	S	W	M
		K				Simplex TRICOT Announced by Reiner	158		S		
			F		M	Perfects WRINKLE-RESISTANCE Gage	158	C	S		
			F			Mechanical PRINTING Equipment Available	160	C	S	W	M
Y						TWISTER Rolls Have Chrome-Plated Finish	160	C	S		
	W					Shuttle-Changing LOOM in France	162	C	S	W	M
	W					New SWISS Machines Available	162	C	S	W	M
Y					M	MOISTURE CONTENT Determined Instantly	164	C	S	W	M
Y	W	K	F	E	M	Excessive MOISTURE Removed	164	C	S	W	M
				E		BEARING Carries Various Types of Motion	164	C	S	W	M
			F			SLACK WASHER Has Partitioned Tank	164	C	S		
Y	W	K	F	E	M	HUMIDITY Controlled at Any Temperature	166	C	S	W	M
	W					New SHUTTLE Designed for S-6 Loom	166		S		
	W				M	Formula Calculates PICKS PER INCH	168	C			
		K			M	KNITTING Pattern Fields Pre-Planned	180	C	S	W	M
Y					M	COTTON-FIBER Color Unaffected by Trash	184	C			
Y	W	K	F	E	M	Pigment in Oil Is Satisfactory TINT	198	C	S	W	M

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DEPARTMENTS

Editorial **4**
Free for the Asking **187**
Kinks and Short-Cuts **171**
New Dyes and Chemicals **252**
News About Men **280**
News About Mills **270**
News About Suppliers **262**
News of the Month **256**
Question and Answers **190**
Reviews of Books **254**
Round Table **168**
Textile Calendar **256**
Textile Equipment News **155**

THE *Long-Range* VIEW

KNOWLEDGE IS POWER

Many of the problems of carpet manufacturing are peculiar to the carpet industry only. But the problem of maintaining sound labor relations is common to all industry, no matter what the product. In this regard, textile mills might well examine the training program of Bigelow-Sanford Carpet Co.—the story starts on page 103.

As Bigelow-Sanford has learned, the matter of training is not merely the teaching of new tasks to new or old employees—it is a matter of continuously increasing the ability and power of each employee, supervisor, and executive, regardless of level, to do his job better. In carrying out this program, sound and established principles have been followed.

In training supervisors in proper labor relations, neither effort nor expense should be spared. Supervisory training must be continuous because of the never-ending flow of new and different problems that face the supervisors. To enable supervisors to do the best possible job of employee relations, full information on the best methods must continually be made available to them. To this end, Bigelow-Sanford has completed some training programs, is engaged in others, and plans more for the future.

An important element is the amount of careful and detailed planning that goes into every part of the program—for thorough planning of such programs is half the battle in making them effective. A volume could be written on the planning, execution, and value of the recent Production Management Conference on Cost Reduction held for Bigelow-Sanford supervisors at an inn in the Berkshire Hills of Massachusetts. Such notable authorities as Lillian Gilbreth; Phil Carroll, Jr.; J. Keith Lowden; and Whiting Williams were brought to the conference to speak to all levels of management on the problems of cost reduction. The ensuing panel discussion, which allowed the supervisors to question these experts, stimulated so many questions that there was not nearly enough time to answer them. But the company made sure that every unanswered question was written out, collected, and submitted to the experts; and that the answer reached the questioner and all others present. Conference groups on various aspects of cost reduction, led by superintendents specially trained by the company in leading a discussion, were extremely well-organized and stimulated from the supervisors a wealth of suggestions which will contribute to the company's operating efficiency.

Other phases of this progressive program are no less valuable—the weekly supervisors' conferences, the sessions on content and interpretation of union-contract clauses, the distribution of printed case-histories of good and bad grievance handling with recommendations on how mistakes may be avoided are all a part of a sound program to convey continuously full and complete information on proper labor handling to all levels of management.

The resultant high morale of supervisors and the feeling on the part of the smallest cog in the wheel that he is really an important part of the over-all picture go to prove that the more you make a man feel that he is a manager, the better manager he will be.

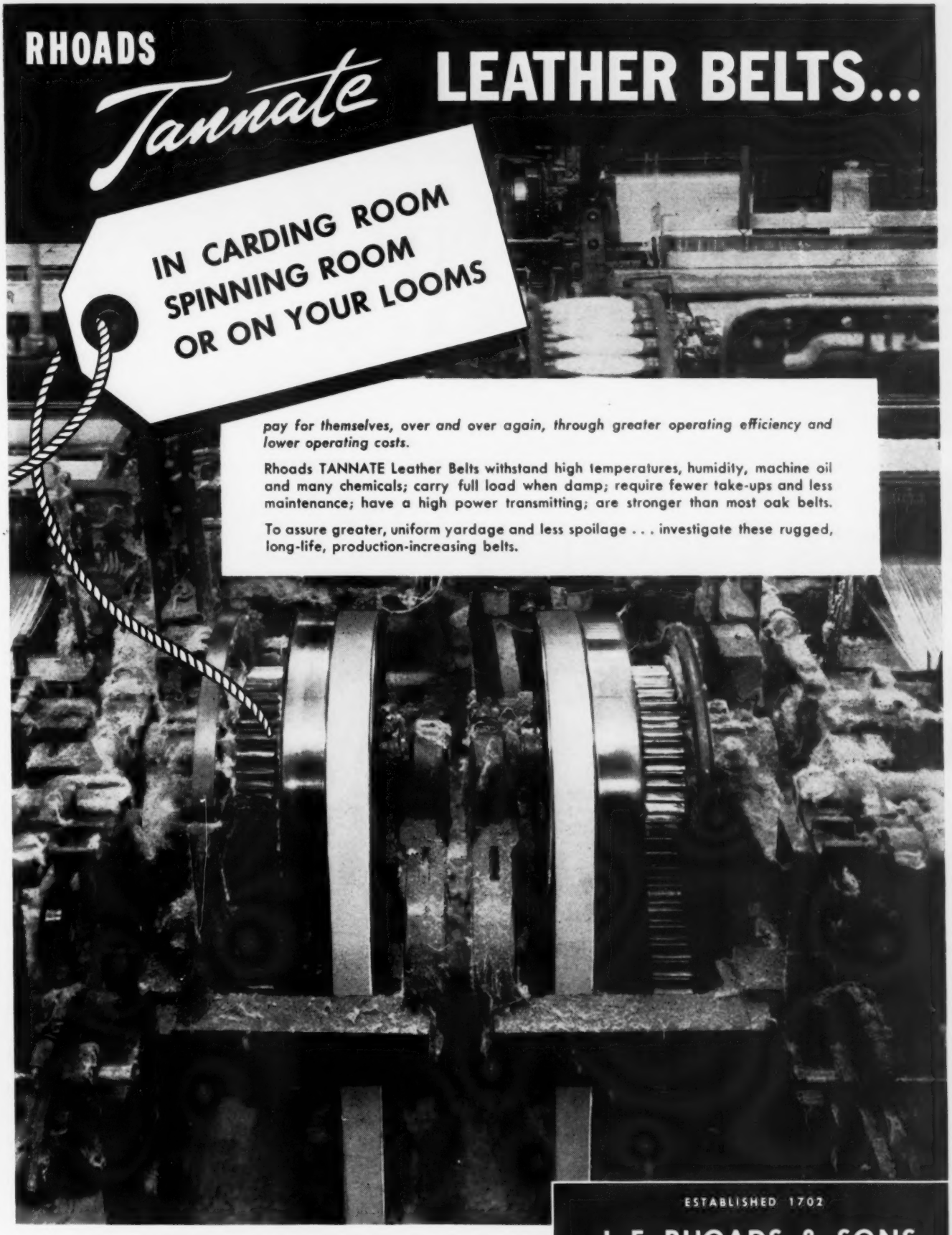
It has been said that information is knowledge—and knowledge is power. The idea of getting all possible authoritative information on management problems to every supervisor might well be followed by all mills. Too many supervisors are being allowed to forget the sound management techniques they were taught during the war. It is human for a foreman occasionally to fumble a grievance, but it is unforgiveable for management to allow the same mistake to happen twice.

His best is all you can ask of a foreman, but his best will be a lot better if you help him. Did your Job Instruction Training program end with the war?

William A. Newell

ASSISTANT EDITOR

RHOADS *Tannate* LEATHER BELTS...



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pay for themselves, over and over again, through greater operating efficiency and lower operating costs.

Rhoads TANNATE Leather Belts withstand high temperatures, humidity, machine oil and many chemicals; carry full load when damp; require fewer take-ups and less maintenance; have a high power transmitting; are stronger than most oak belts.

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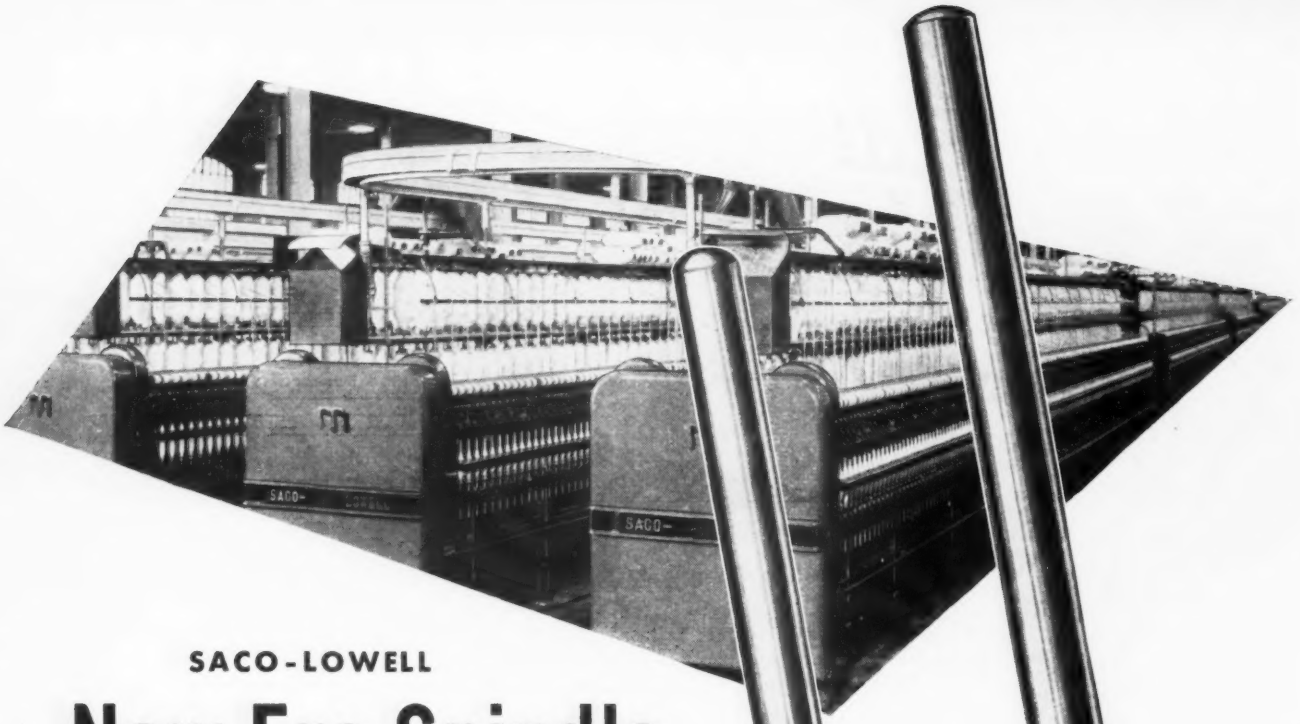

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Power saving, frequently as high as 30%, over gravity type spindles

Freedom from vibration

Practically no wear of component parts

No appreciable maintenance expense of any kind

No revolving shaft to cause oil stained yarn

Always an oil free spindle rail

Need not be disassembled under normal circumstances

Tape life increased as much as 75%

Oil Cushioned Type

Rubber Mounted Type

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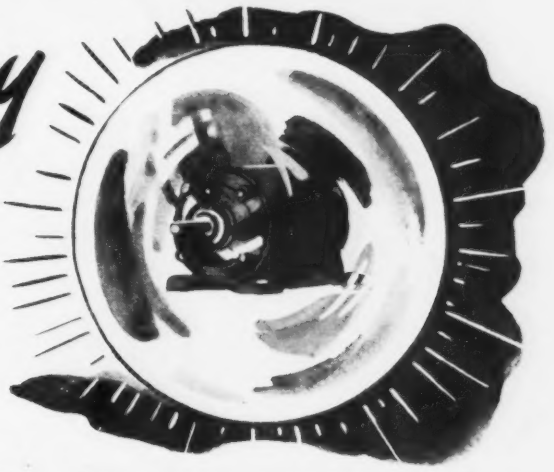
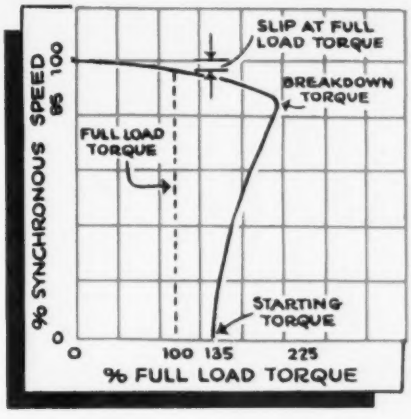
Here's One Way to Choose Motors...

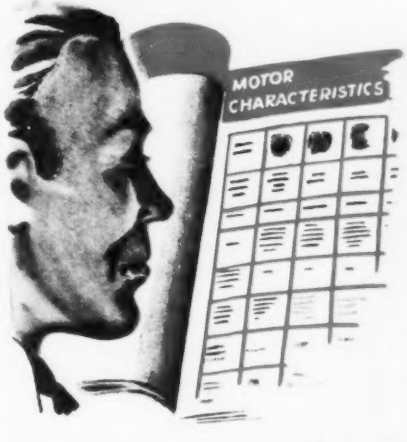




Sure, Your Local "Swami" can pick a motor for you in an instant! But if you want motor counsel you can *bank* on . . . you'll consult a reputable motor manufacturer. In place of crystal-ball gazing, he'll advise you to follow *practical* and *orderly* steps in arriving at *right* motor selection. For example . . .

First, Study Your Power Supply . . . voltage, frequency, number of phases; the p.f. required by your utility. Judicious selection will help balance your motor capacity . . . lower power costs. And check the voltage regulation — choose motors with enough torque to start and carry the load. Next . . .

Study the Driven Machine and surroundings. What hp? What starting torque? Will you need a horizontal or vertical motor — direct-connected, belt-driven or gear-operated? How about surroundings — ambient temperature, moisture, corrosion, dust. Each calls for a particular type of protection. Now . . .



Study Your Motor Characteristics. *A-c motors?* For most jobs they're satisfactory and economical. *D-c motors?* For wide speed range; for fast acceleration or reversal they may prove your best bet. *Synchronous motors?* When applicable they give you low-cost p.f. correction. You're *still* undecided? Call in your nearby Allis-Chalmers motor expert. He'll be glad to help you decide—with recommendations backed by 50 years of motor-building!

Wise Motor Choice Saves Power; Ups Profit!

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Depend on Du Pont for help in developing *blends* and combinations—for Du Pont textile specialists are learning more every day about how to use, where to use, why to use, and what to expect from blending nylon's strength and lightness with the versatile beauty of rayon.

Depend on Du Pont because of Du Pont research. In addition to Du Pont's wealth of research in chemistry and engineering, 800 men and women are engaged every business day in specific research in textile fiber development. They are looking for new ways to build extra values, extra *sales* values, into textile fibers made by Du Pont.

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For RAYON
For FIBERS to come...look to Du Pont

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in 2% NaOH	0.073*
in 1% Na_2SO_4	0.12
in 3% Na_2SO_4	0.091
in 5% Na_2SO_4	0.078*

*Limit of solubility.

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EXTRA STRENGTH ---longer wear
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COSTS GO DOWN WHEN FRICTION GOES OUT

Faster production is very definitely a function of New Departure ball bearings.

Operating with less friction, less wear, lower upkeep cost, the ball bearing is a "natural" for the higher speeds, greater rigidity and improved quality demanded by today's exacting production standards. Thus, an investment in machines of modern ball bearing design is an investment in faster production — lower costs.

nothing rolls like a ball

NEW DEPARTURE®

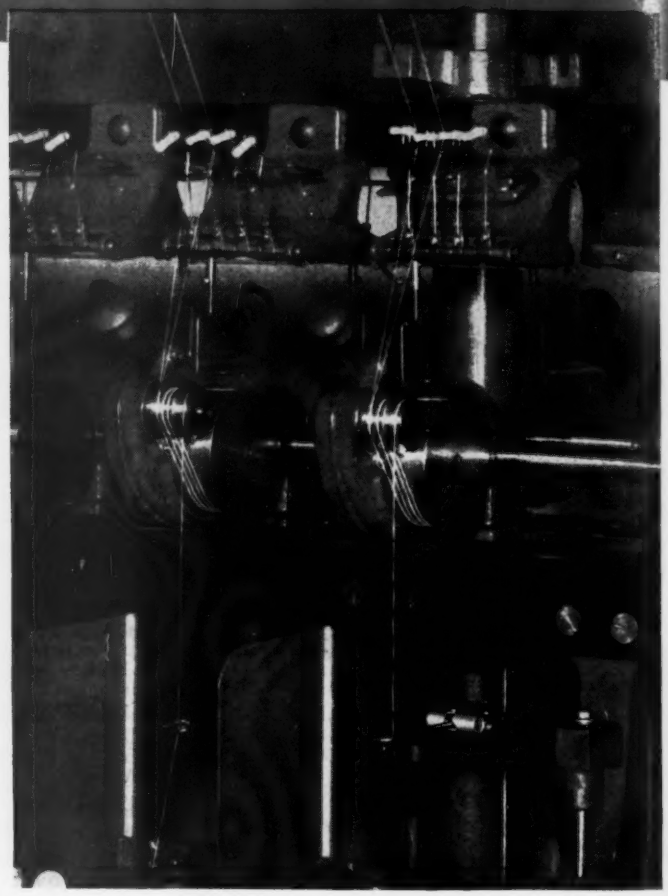
BALL BEARINGS

3501

NEW DEPARTURE • Division of GENERAL MOTORS • BRISTOL, CONN. • Branches in DETROIT, CHICAGO, LOS ANGELES and Other Principal Cities

It's the "ATWOOD extras" that have made ATWOOD #1 in throwing machinery

Doubling and ring twisting . . .



Automatic stop motion on Model 10 ("5B") permits tying knots in SINGLE ends. Eliminates roller laps and short plies, reduces dirty yarn and waste to a minimum. Only one spindle stops—others go on producing. Operator can work in cycle.

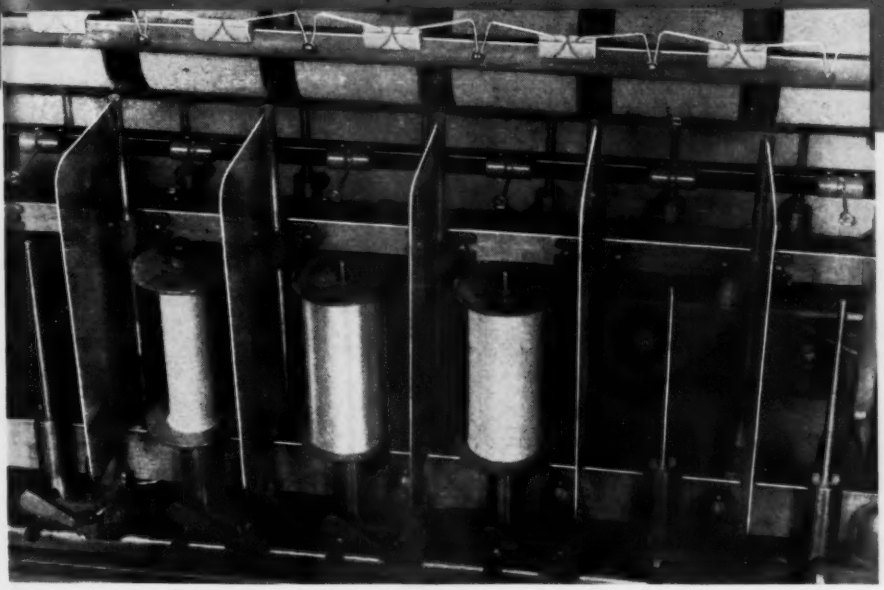
ATWOOD

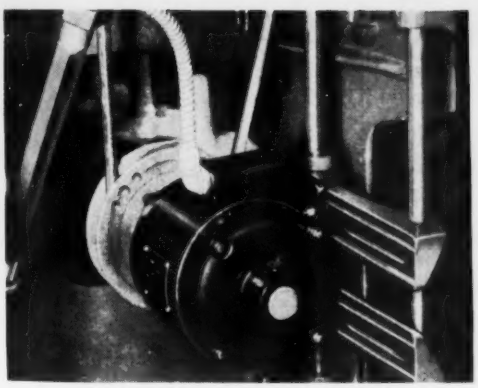
UNIVERSAL WINDING COMPANY

Boston • Providence • Philadelphia • Utica • Charlotte • Atlanta
Paris, France • Basle, Switzerland

Uptwisting

Bobbin hanger on Model 110 Uptwister accurately positions take-up package, giving a more even and positive drive than with the conventional finger and accurately controlling the thread lay. Less burnt yarn, less hard twist, fewer broken filaments, more uniform conditioning.





Redrawing . . .

Variable-speed main drive on Model 200 Redraw eliminates change gears. Turning the small handwheel gives the right yarn speed — anything between 150 and 350 ypm — in a few seconds. Quick-reading yarn-speed-per-minute chart saves errors possible when making quick on-the-spot computations.

ATWOOD DIVISION

PROVIDENCE 1, RHODE ISLAND

Chicago • Los Angeles • Montreal • Hamilton • Manchester, England
Agents in every principal textile center in the world

23-7-18

Let's discuss your Spinning!

THE NEW REGNERY SPINDLE ADAPTER★

ALUMINUM BOBBIN WITH PLASTIC TOP INSERT★

Consider the many advantages of the *Aluminum Adapter* on your present spindles together with the newly developed *ALUMINUM warp spinning bobbin.*

★ PATENTS PENDING

SAVE—on doffing and spooling costs with more yarn per bobbin with aluminum or paper tube spinning.

IMPROVE YOUR SPINNING—with this durable precision aluminum bobbin and its plastic insert for top drive spinning. With our adapter mounted on your present spindle you will eliminate vibrations and reduce ends downs.

GET READY NOW FOR THOSE COMPETITIVE DAYS AHEAD—WITH BETTER SPINNING!

With our aluminum spindle adapter made to your individual specifications your spindles can be converted for better spinning ***with either straight or tapered bobbins.***

Our price includes the complete reworking of your spindle to assure you of proper concentricity and balance. Moreover, the bobbins will be driven correctly—from the top.

You will get up to 40% more yarn on each bobbin and the annual savings secured through this conversion should amount to a 30% return on your investment.

We invite you to try this conversion on one frame so that you will have a comparison in your own mill and can check the improved results.

F. L. REGNERY Corp.

PRECISION TOOLS • PRODUCTION • AND ENGINEERING

613 WEST 16TH STREET, CHICAGO 16, ILLINOIS

Southern Representatives: Harry S. Parker, Jr., Goldville, S. C.: John L. Bricker, Goldville, S. C.

Eastern Representative: David C. Meyers, St. Davids, Pa.

SANDOZ PRESENTS *The color achievement of the month*

Tiger Lilies BY TEXTRON

Huge tiger lilies splashed against rayon taffeta, Textron-treated for water repellence and mildew resistance, give a woodsy atmosphere to shower-bathing—a typically dramatic achievement of Textron, Inc.

Helping to give free expression to one of the textile industry's boldest imaginations, Sandoz furnishes Textron with dyestuffs that handle well and easily and hold their character in service.

Among the Sandoz products is also included the CEROL range of waterproofing emulsions. These CEROL products have proved reliable for more than twelve years in the finishing of all types of fabrics—to produce straight waterproof finishes or to combine waterproofing with mildewproofing.

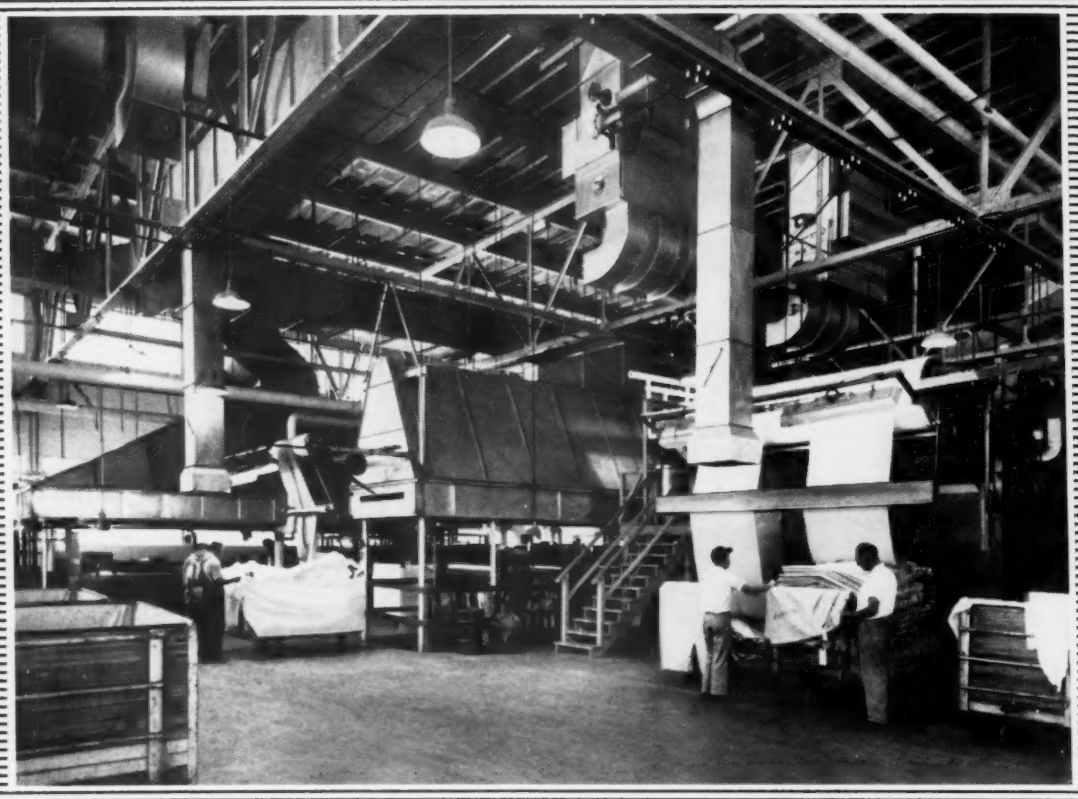
There are specific types for acetate and viscose rayon, cotton and wool. In addition to their high degree of repellency, their high stability enables the finisher to combine them with other finishing ingredients.

For acid, chrome or direct dyes . . . or auxiliary chemicals . . . for both natural and synthetic fibres . . . be guided by the successful "color achievements" you have been seeing in these Sandoz advertisements. Sandoz application laboratories are located in New York, Boston, Los Angeles, Philadelphia, Charlotte, Toronto, where stocks in wide range are carried. Other branches are in Chicago, Paterson and Providence.

SANDOZ CHEMICAL WORKS, INC., 61 VAN DAM STREET, NEW YORK 13, N.Y.

SANDOZ *thinks ahead with textiles*

SANDOZ



This dye house is dry the year round

Here's the dye house of a southern mill that's never bothered with fog. And the walls never drip with condensate. It's equipped with Carrier Heat Diffusers.

Carrier's scientifically designed Heat Diffusers bring in outside air, heat it to the desired temperature and distribute it to every corner. The dye house is always clear of vapor clouds . . . damaging condensate is eliminated.

These easily installed standard units are equally profitable in other parts of the mill. They provide even, accurately controlled heat, eliminate cold corners and save fuel. Adjustable louvers permit distribution of heated air in any direction. Capacities range from 115,000 to 1,570,000 Btu per hour.

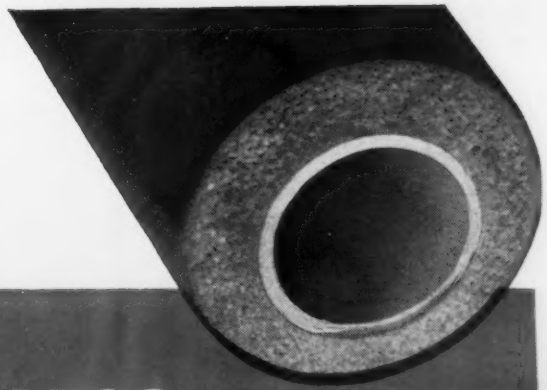
Carrier Heat Diffusers reach you completely assembled—ready for quick installation. The Carrier name—long the symbol of leadership in air conditioning—is your assurance of dependable service and low operating cost. Carrier Corporation, Syracuse, New York.

Carrier

air conditioning

refrigeration

industrial heating



COST LESS
SPEED ASSEMBLY
HAVE LONG LIFE

Armstrong's Cork Cots are ECONOMICAL

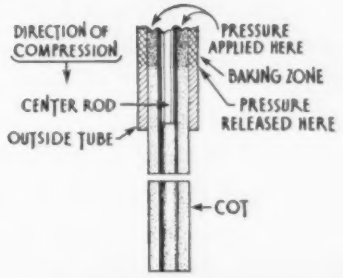
YOU SAVE in three important ways when you install Armstrong's Cork Cots on your spinning and roving frames. First, these widely used roll coverings are low in initial cost. Second, they go on fast. Assembly time is reduced as much as 50%. And third, they have a long service life.

The extra "grip" of Armstrong's Cork Cots gives you more uniform yarn. Their extra friction also carries waste well back onto the clearer boards—so no eyebrowing occurs. Thus there's no danger of waste's dropping off or being nipped into the yarn.

The extra resilience of Armstrong's Cork Cots provides quick recovery from most laps and hard ends. And because these cots are extruded, they have no hard or soft spots to grip the yarn unevenly. They retain these spinning advantages throughout a long initial service life. In addition, they can be rebuffed for three or four additional full length service lives.

Get all the facts on these economical cork cots from your Armstrong representative. Or write today to Armstrong Cork Company, Textile Products Dept., 8312 Arch St., Lancaster, Pa.

EXTRUSION PROCESS PRODUCES SEAMLESS CORK COTS



Armstrong's Cork Cots have no structural weakness to cause premature breakdown. Each cot is uniform in density from inside to outside, from end to end. Each compresses evenly, spins stronger yarn, lasts longer.

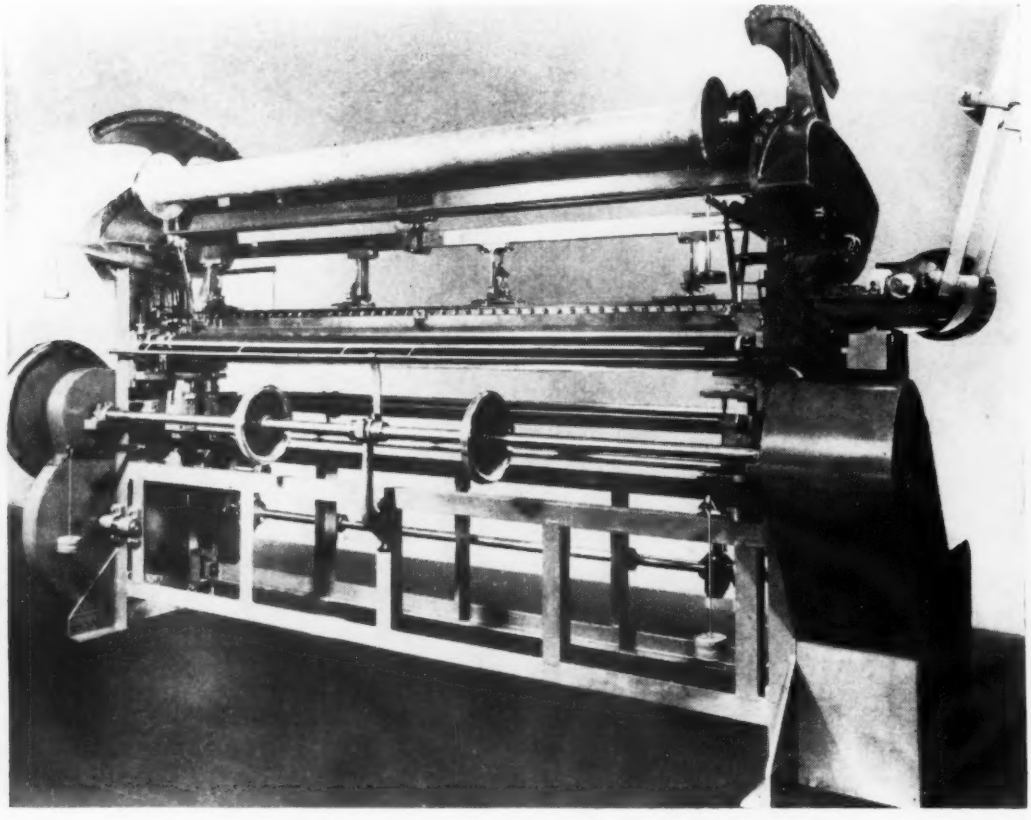
Better running work . . . more poundage

ARMSTRONG'S CORK COTS

ACCOTEX COTS • ACCOTEX APRONS

ROBACZYNSKI

RASCHEL TYPE WARP KNITTER



What do you want to make?

Fabrics, for elastic foundation garments, mosquito netting, hair nets, outerwear, underwear, curtain lace? With this machine you can knit a multitude of fabrics with any yarn from 10 denier (worsted yarns from 5 to 50 counts) at speeds up to 250 courses per minute.

The Robaczynski Raschel Type Warp Knitter is a simple, smooth running, steel fabricated machine, for hand or power operation. It is equipped with sand rollers, two needle beds, four guide bars and pattern drum wheel system. Six bars if necessary or less if so desired.

There are so many fabrics you can knit better and cheaper on this Raschel type warp knitter you owe it to yourself to investigate. Tell us your problems. There's no obligation. Early deliveries are assured.

WE ALSO MANUFACTURE

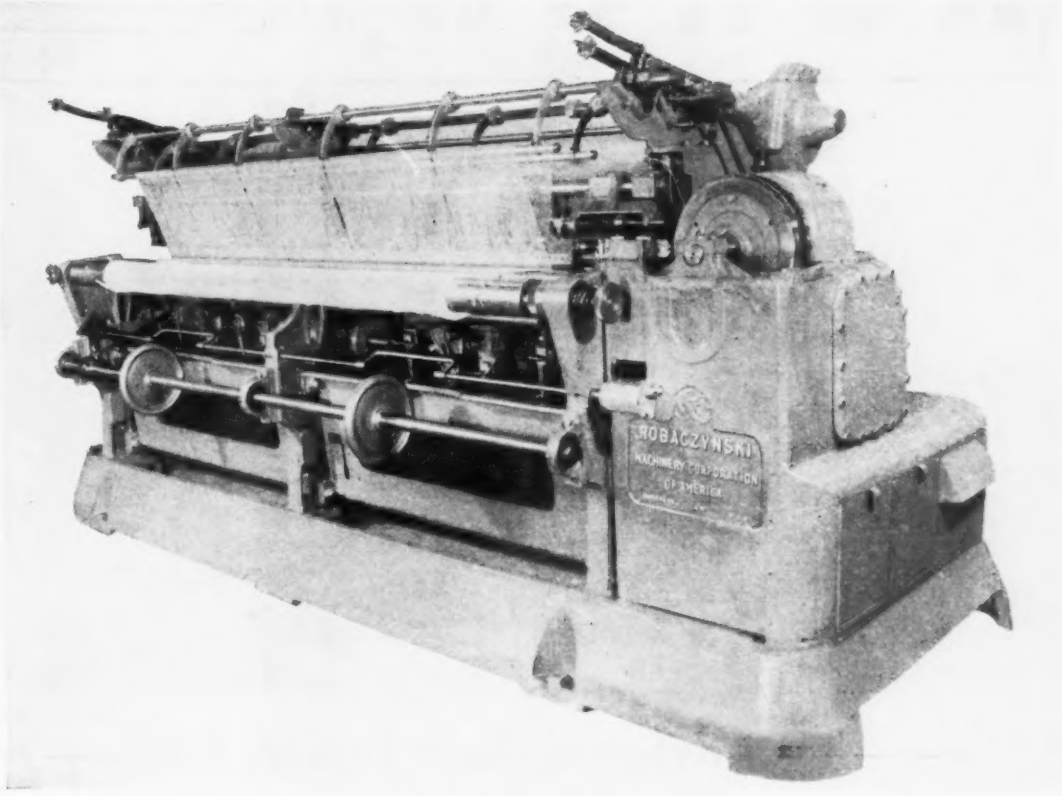
TRICOT MACHINES • V TYPE FLAT KNITTING MACHINES • PURL STITCH OR LINK & LINK MACHINES • BORDER MACHINES • TUBULAR TRIM KNITTING MACHINES • CIRCULAR STRING & BELT MACHINES • COMPLETE INFORMATION ON REQUEST

ROBACZYNSKI MACHINE CORPORATION

340 TEN EYCK ST., BROOKLYN 6, N. Y.

ROBACZYNSKI TRICOT

The New Model—Now in Production



Your tricot of tomorrow

A low cost, big producer of outerwear, underwear and other fabrics in widths from 90″ to 180″ with yarn from 10 denier up, at speeds from 250 to 500 courses per minute.

All parts easily accessible, all adjustments on the front of the machine with the operator working in a natural position.

Quality and quantity production with a long and carefree life is assured. See it now in operation at our plant.

A MERRY CHRISTMAS
to our friends — the knitters
all over the world

ROBACZYNSKI MACHINE CORPORATION

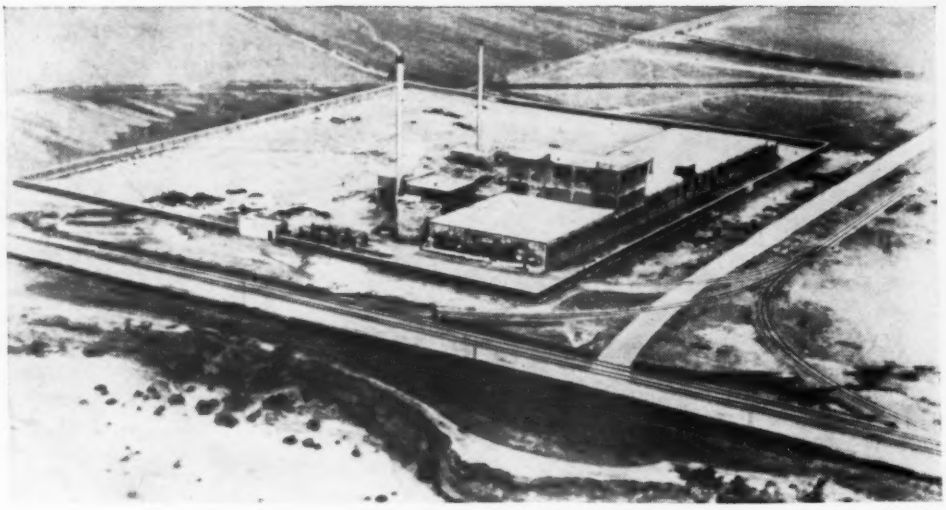
340 TEN EYCK ST., BROOKLYN 6, N. Y.

KOHORN

(Number 8, of a series)

This Plant Constructed in 1946

1919



1924

Advanced Plant Design

1935

FILAMENT RAYON
RAYON STAPLE FIBER
CELLOPHANE
PLANTS

Pioneers of the Rayon Industry

OSCAR KOHORN & CO., Ltd.

EXECUTIVE OFFICES
501 Fifth Avenue New York 17, N. Y.

1938

SERVICES RENDERED:

PLANT LOCATION:

(a) Survey on the ground to determine location, man-power, transportation, markets, raw material, power, fuel and water supplies.
(b) Determine size of initial plant, and plan its expansion.
(c) Consultation on types of yarn, denier, packaging, etc.
(d) Estimates for land and building, equipment, and working capital.
(e) Estimate production cost and overhead, sales and profit.

ERECTION OF BUILDINGS AND MACHINERY:

(a) Furnish complete plans for buildings and machinery.
(b) Supply all production machinery and auxiliary equipment.
(c) Send KOHORN engineers to erect plant, install machinery and building equipment.

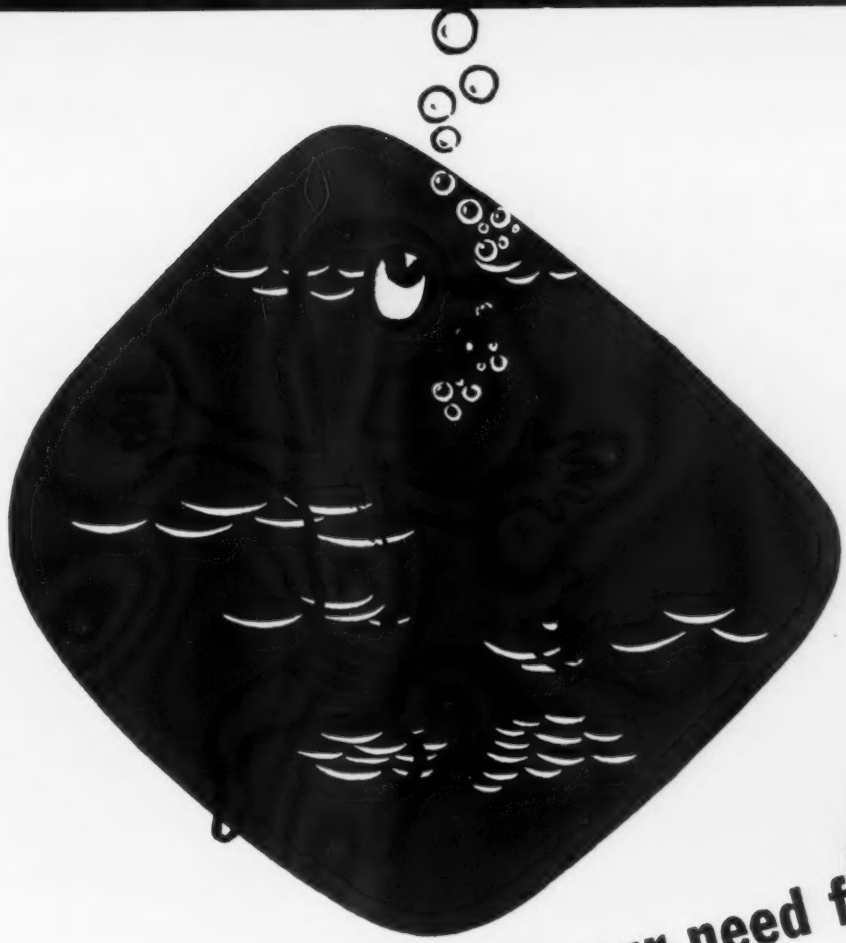
STARTING PRODUCTION:

(a) KOHORN Chemists and Engineers, start the plant and bring it into full production.
(b) KOHORN experts help train local labor.
(c) Modern chemical and mechanical processes, installed by KOHORN, hold consumption of raw material and labor to a minimum.
(d) KOHORN engineers co-operate with your sales department in introducing product to the market.

PLANT EXPANSION

(a) KOHORN'S interest in your plant, after it is turned over to you, continues. Consultation always available.
(b) Our latest patents are put at your disposal when plant expansion is contemplated.

1941



never underestimate your need f AIR

This fellow did! But someone may save him yet. Perhaps it's his first experience, or maybe he didn't heed the warnings.

Did you ever stop to consider how essential *Air Power* is to your shop or factory? And how Compressors, Air Tools, and air appliances do wear out eventually, or become inefficient in comparison with modern ones?

Have you found so many uses for *Air Power* that your compressors and piping are too small, making your workers use air at low, less-efficient pressures? Remember too, your plant has grown . . . methods have changed.

At present you may be using very little air, or perhaps none at all, but never overlook the tremendous possibilities and advantages of Air Power. *Never underestimate your need for Air.* Call in an Ingersoll-Rand Air-Power Specialist. He can help you.

77-1

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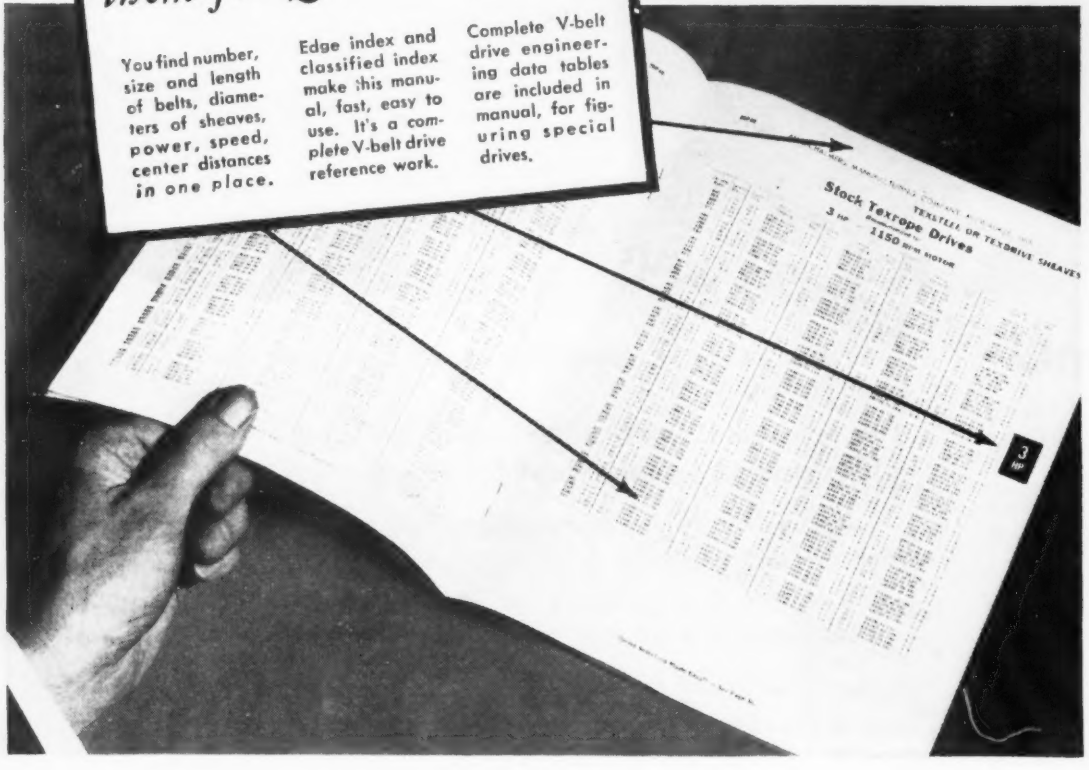
Ingersoll-Rand

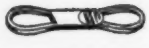
11 Broadway, New York 4, N. Y.

90% OF ALL V-BELT DRIVE PROBLEMS SOLVED ECONOMICALLY WITH TEXROPE

Pre-Engineered Drives

TEXROPE ..Greatest Name in V-Belt Drives

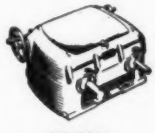

This New Manual Lists them for Quick Reference
You find number, size and length of belts, diameters of sheaves, power, speed, center distances in one place.
Edge index and classified index make this manual, fast, easy to use. It's a complete V-belt drive reference work.
Complete V-belt drive engineering data tables are included in manual, for figuring special drives.
Stock Texrope Drives
3 HP 1150 RPM MOTOR
TEXSTEEL OR TEXDRIVE SHEAVES
3 HP



"Super 7" V-BELTS
Five Types — Sizes to suit every power transmission job.

Texsteel, Texdrive, "Magic-Grip"
— sheaves in a full range of sizes, grooves.

"Vari-Pitch" SHEAVES
Exact variations in speed, stationery or motion control.



SPEED CHANGERS
Speed variations up to 375% at the turn of a crank.

ENGINEERING
Finest V-Belt engineering talent in the world—at your call.

USING STOCK BELTS AND SHEAVES, Texrope engineers have selected the *best* drive for each requirement . . . the drive most economical in first cost and in maintenance.

Only Allis-Chalmers offers you this complete Pre-Engineered drive manual. It is the product of 23 years of industrial V-belt drive experience, the finest engineering talent in the business.

Here is a book that will save you time and money in the purchase of V-belt drive equipment. Copies have been sent to many Texrope users and dealers. If you don't have a copy yet, write for Texbook No. 20P40. ALLIS-CHALMERS, MILWAUKEE 1, WIS. A 2335

TEXROPE "Super 7" V-Belts result from the cooperative research of two great companies — Allis-Chalmers and B. F. Goodrich. They are sold only by A-C.

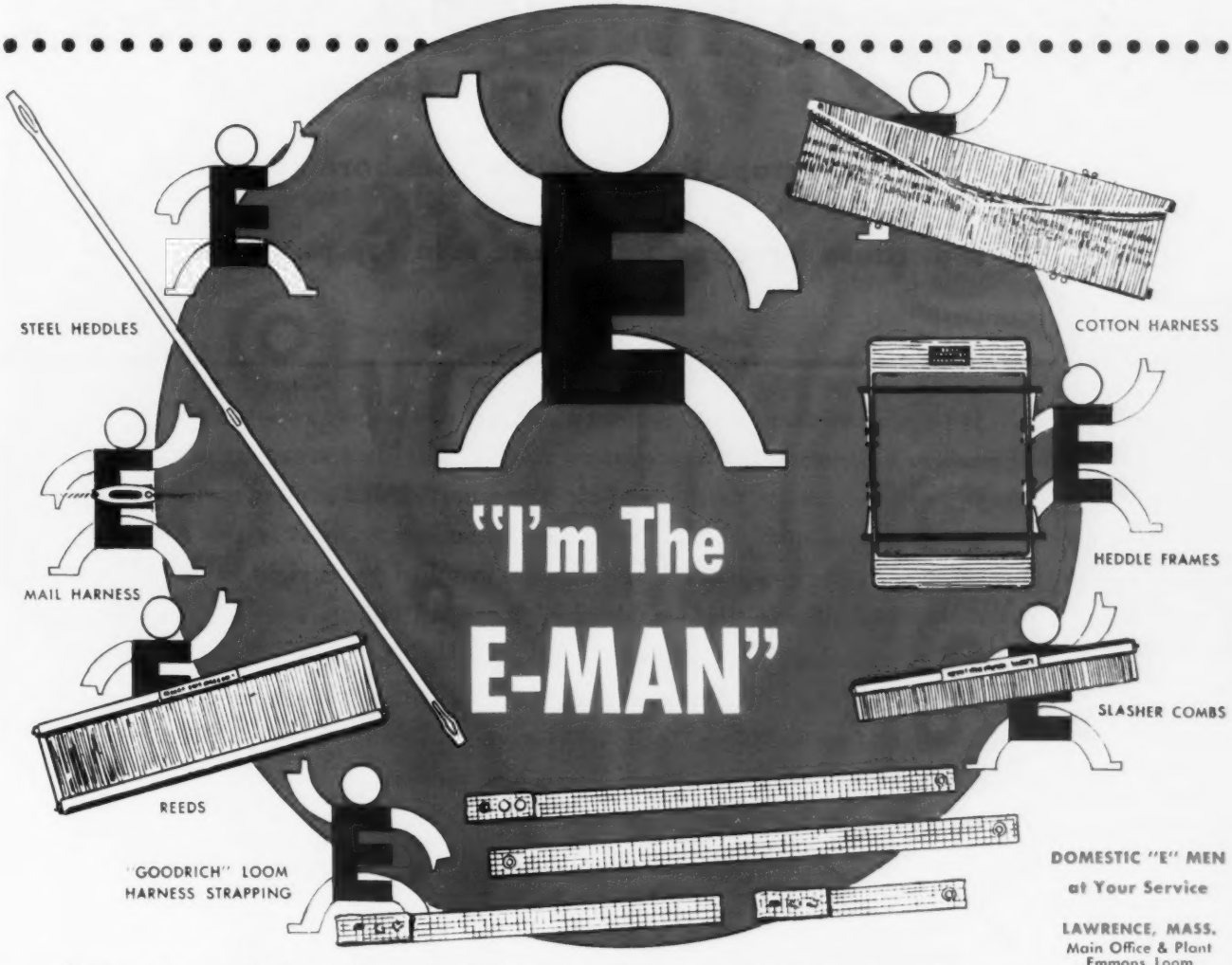
Texrope, Super-7, Texsteel, Texdrive, Magic-Grip and Vari-Pitch are Allis-Chalmers Trademarks

ALLIS-CHALMERS

One of the Big 3 in Electric Power Equipment — Biggest of All in Range of Industrial Products

1847 A-C 1947
A CENTURY OF SERVICE to Industry THAT MADE America Great

I Cover The Textile World



Letters, phone calls, leg work . . . the E-MAN saves all this on inquiries for the products shown above and for many more, no matter what part of the textile world you're in! One letter, one phone call or one interview is all you need to signal the E-MAN listed below! Call him when weave room equipment or related textile supplies are on your "required" list!

INTERNATIONAL "E" MEN AT YOUR SERVICE

ARGENTINA
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EMMONS PRODUCTS *Serving The Textile Industry!*

STEEL HEDDLES — HEDDLE FRAMES — COTTON HARNESS — REEDS — SELVAGE HARNESS — MAIL HARNESS — MENDING EYES AND TWINE-SLASHER AND STRIKING COMBS— EMMONS LOOM STRAPPING (MANUFACTURED BY B. F. GOODRICH CO.) RUN-RITE PLASTIC SHEAVES MANUFACTURED BY NATIONAL PLASTICS, INC. — McLANATHAN LEATHER PRODUCTS-CONDENSER TAPES • WONDERTAN STRIPPER BELTS • APRONS

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1812 Main St.
Phone — C-6283; C-6284

EMMONS WEAVE ROOM EQUIPMENT

Change TWISTED-IN DIRT

Precipitron traps the "invisible" air-borne particles

that cause streaked yarns and ruin top production.

It takes more than conventional air cleaning methods to avoid daily spinning losses. For no matter how efficient mechanical filters are, they are not designed to eliminate the 85% of air-borne particles of smoke, soot, and oily dust that are smaller than 1–25,000th of an inch. And it is this 85% that causes a high percentage of the damage in soiled yarns right in the twister room—and adds to the loss during high speed winding.

Westinghouse Precipitron operates on a principle of electronic air cleaning that gives three to five times the efficiency of ordinary mechanical air filters. It removes up to 90% of ALL microscopic air-borne particles *before* soilage can do harm. Precipitron traps "invisible" dirt as tiny as 1–250,000th of an inch, as proved by actual blackness tests.

Investigate Precipitron now for your mill. See for yourself why so many of the country's leading mills have installed this simple-to-operate system that means increased production and higher quality. Just call your nearest Westinghouse office, or write to: Westinghouse Electric Corporation, Sturtevant Division, Hyde Park, Boston 36, Massachusetts.

*Trade Mark of the Westinghouse Electric Corporation, Sturtevant Divison, Reg. U. S. Pat. Off.

BLACKNESS TEST

In this test of the National Bureau of Standards, air is drawn into the test instrument and passed through chemical filter paper. Dirt deposits are taken before and after the cleaning device.

Uncleaned Air | Mechanically Cleaned Air | Precipitron Cleaned Air

to TWISTED-IN PROFITS WITH *Precipitron*®

COTTON OR RAYON SPINNING

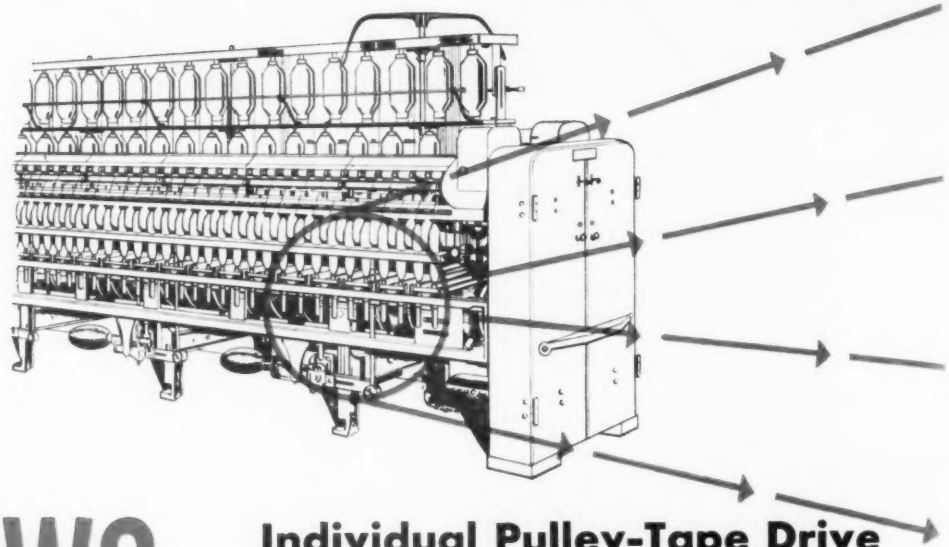
Here's where Precipitron saves by eliminating streaked and dirty yarns. Note the immaculate guides, free from dirt and oil mist. As the air is recirculated through the Precipitron, air-borne dirt originating from the machines is also removed and really *clean* air is delivered to the throwing room.

J-80022

Westinghouse
Sturtevant
DIVISION

MODERNIZE

YOUR OLD BAND DRIVE SPINNING FRAMES



With

MEADOWS Individual Pulley-Tape Drive CONVERSIONS!

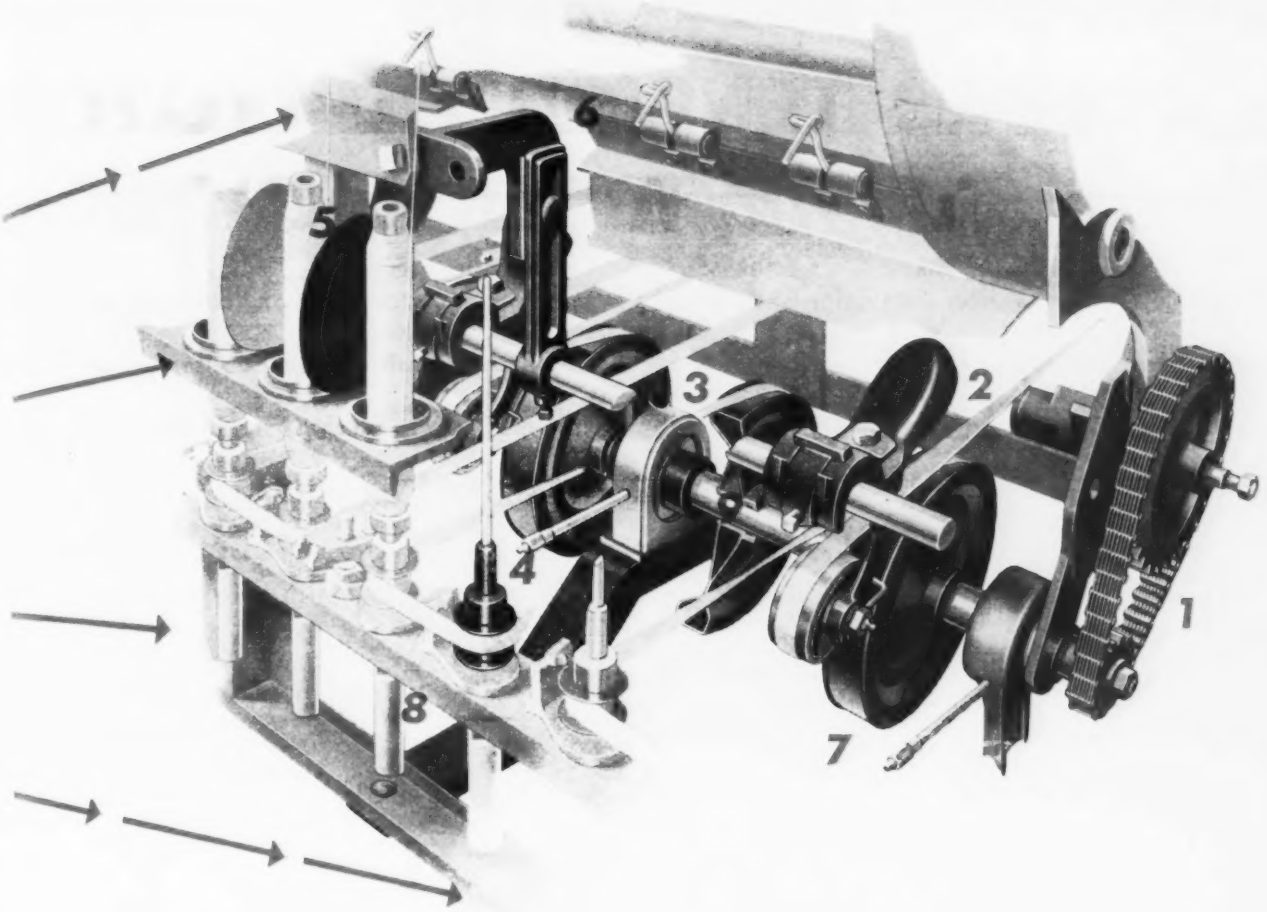
Old model band-drive frames can be converted to tape-drive, and made to operate at peak efficiency, by installing the parts shown on the opposite page. Higher speeds can be attained with less vibration and with fewer ends down; spindle speeds are uniform, which means uniform twist, better package and more yarn.

Light-weight solid aluminum alloy Separators mean less wear on yarn while it is being spun: Ball Bearing Tape Tension Pulleys mean low power consumption, no tapes off due to choked or sticky pulleys: silent Chain Drive means less noise, less vibration: individual driving pulleys, and high strength ground and polished shafting, mounted on heavy duty ball-bearings means low power consumption, smooth operation and no more cylinder trouble.

On frames that are already tape-driven, the installation of our individual Driving Pulleys, high strength shafting and heavy duty ball-bearings will eliminate cylinder trouble *for keeps.* This is because the power input is through a steel shaft, rather than a tin cylinder. The driving pulleys are made of much heavier steel than cylinders, yet do not coast, because the mass of rotating metal is near the center of gyration. *No more heads to jerk out.*

Let one of our representatives show you how a Meadows Conversion will increase production on your spinning frames.

MEADOWS MANUFACTURING



1. **CHAIN DRIVE:** 1" or ¾" center guide, silent chain, hardened steel cylinder gear, cast iron machined Jack-gear, cast iron swing arm. Jack-shafts can be furnished either plain or ball bearing.

2. **MEADOWS TENSION PULLEY ASSEMBLY:** B-214 LA Ball Bearing aluminum alloy Tension Pulley, 3¼" diameter, 1¼" crown face; B-243 Tension Weight, B-241 Spacing Collar; M-48 curved steel Washer; Cap Screw and Set Screw.

3. **B-299 UNIVERSAL BALL BEARING CYLINDER UNIT:** Built with heavy duty Fafnir Bearings; metal shields both sides for dust elimination; self aligning. Can be furnished for any particular installation.

4. **NEW WHIRLS:** Can be furnished to your specifications.

5. **ALUMINUM ALLOY SEPARATOR SHIELDS:** Made from high strength aircraft sheet aluminum, with cast hub. Brackets, rods and accessories can be furnished with the blades. Shields will bend without breaking.

6. **ADJUSTABLE CAST IRON SUPPORTING HANGERS:** For each make of frame.

7. **INDIVIDUAL PRESSED STEEL DRIVING PULLEY:** Made of 18 gauge, high strength cold rolled steel, welded to steel hub; steel hub has shaft-protecting ring inside, to prevent set-screws from biting into shaft, making pulley easily adjustable.

8. **NEW CAST IRON CROSS-GIRTS:** Can be furnished for any particular application.

9. **HIGH STRENGTH STEEL SHAFTING:** SAE 1035, cold rolled ground and polished.

Representatives

JAMES P. COLEMAN,
P. O. Box 1351, Greenville, S. C.

WALTER S. COLEMAN,
P. O. Box 722, Salisbury, N. C.

MATTHEWS EQUIPMENT CO.,
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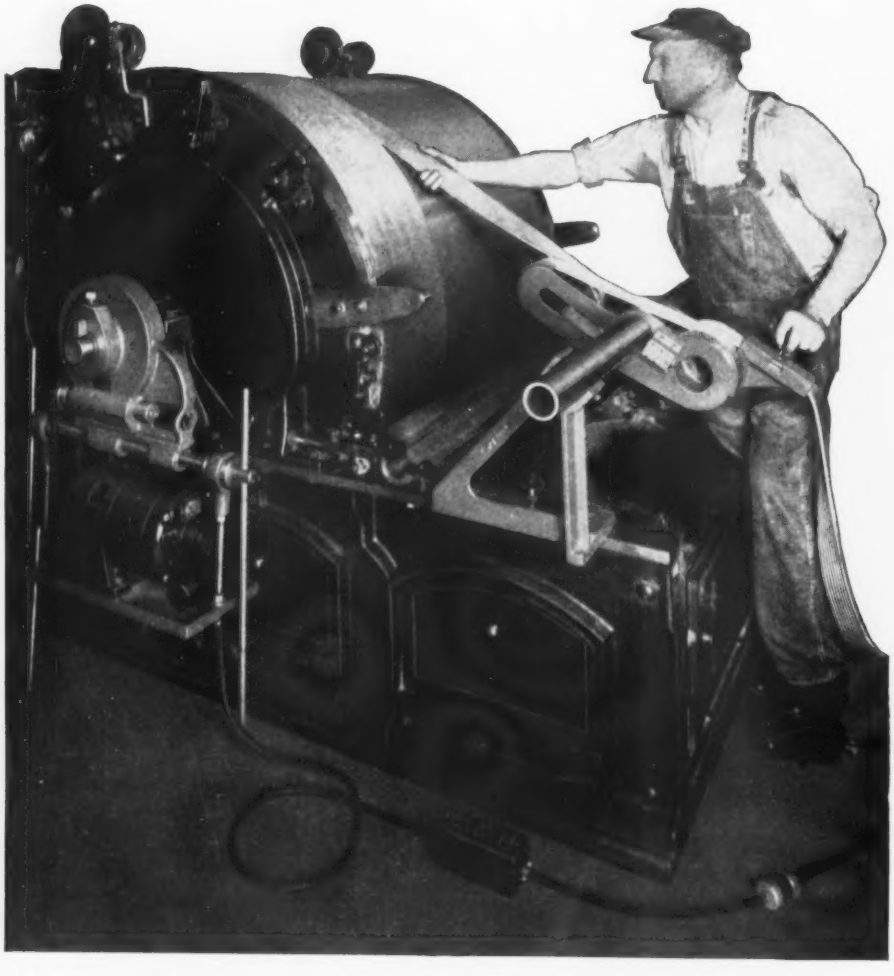
We engineer and service each installation, design and manufacture all parts.

COMPANY — ATLANTA, GA.

Clothe your cards with a
TUFFER TENSION REGULATOR
and Tuffer Motor Drive

Using the Tuffer Tension Regulator and Tuffer Motor Drive, one man and a helper can clothe the most difficult roll in an exceedingly short time!

Whether used on cylinders or doffers, the Tuffer Tension Regulator puts on card clothing with smooth, even tension. You'll do it faster and better with the Tuffer Tension Regulator and Tuffer Motor Drive!



Tuffer Tension Regulator

A rugged, lightweight device for regulating tension when clothing cards. Sturdy steel construction—no complicated parts—weighs only 62 lbs. Frictionless, sealed roller bearings.

Tuffer Motor Drive

A small electric motor sends its power through gear reduction to the shaft of a cylinder or doffer. Simple sleeve-bushings make it custom fitted to the cards. Plugs in like a vacuum cleaner—takes but little more power.

Why do it the hard, costly way when you can use a Tuffer Tension Regulator? For complete information . . . ask our representative or write to any Howard plant or branch office.

HOWARD BROS. MFG. CO. WORCESTER 8, MASSACHUSETTS

Southern Plants: Atlanta, Ga. and Gastonia, N. C.

Branches: Philadelphia, Pa. and Blanco, Texas *Direct Representation in Canada* A-4

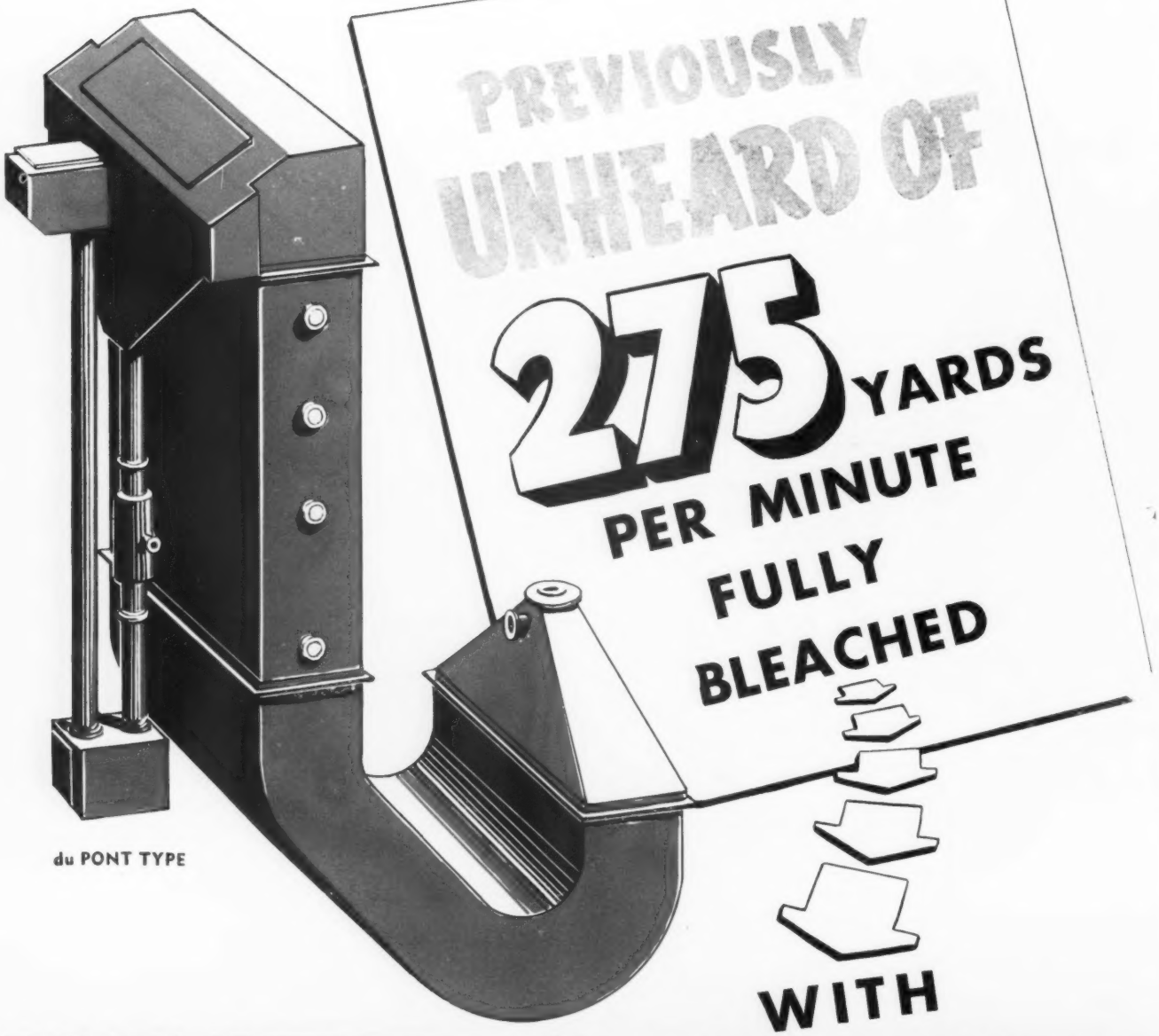
TUFFER CARD CLOTHING

IMPROVES PRODUCTION ALL ALONG THE LINE

Westinghouse Fluorescent Lamps offer HIGH LIGHT OUTPUT to provide real SEE-ABILITY. Their low surface brightness minimizes direct glare. They provide excellent distribution of light, are cool burning, and duplicate most closely the color of OUTDOOR DAYLIGHT. To step-up production in your mill, plant or office, to reduce waste or spoilage, to help improve quality or product, to promote safety—it's to your advantage to provide good lighting—the kind synonymous with Westinghouse. Yes—for fluorescent lighting at its best, specify Westinghouse—the name you know in lamps!

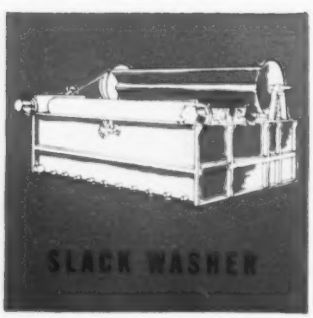
Lamp Division, Westinghouse Electric Corp., Bloomfield, N. J.

Westinghouse lamps
FOR SEE-ABILITY



WITH

WIESNER



The "J" Box is the heart

of Wiesner-Rapp Continuous Bleaching Ranges. New high-speed production of roped material started with the introduction of "J" Boxes.

To keep up with the potential bleaching output of "J" Boxes, Wiesner-Rapp designed and built entirely new revolutionary, stainless steel bleaching ranges that are turning out yardage at a rate up to 275 yards per minute — 132,000 yards every 8 hours. Our engineers have worked hand-in-hand with textile men to achieve this record rate of production and these same engineers will welcome an opportunity to talk with you. The size and capacity of your plant are no limitations. Hear the exclusive Wiesner-Rapp story first hand from our engineers by calling them in today to tell you how you can be ahead . . . stay ahead with —

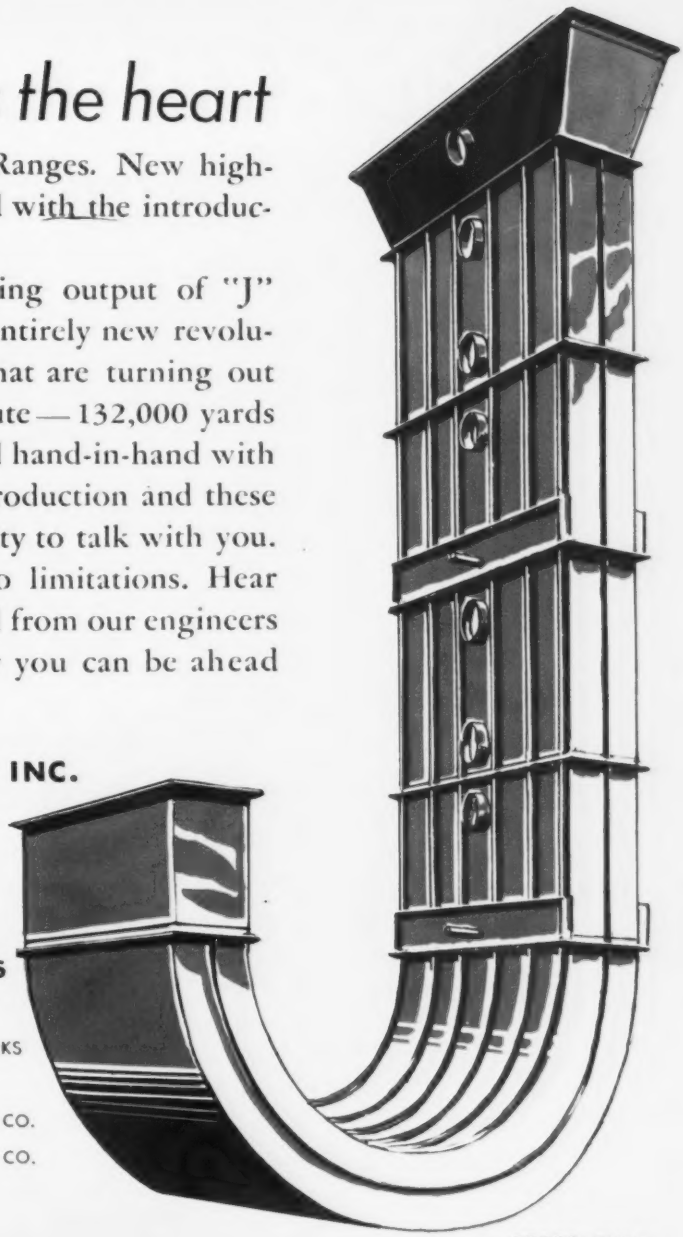
THE WIESNER-RAPP CO., INC.

W-R

BUFFALO 11, N. Y.

PARTIAL LIST OF W-R RANGE USERS

ARKWRIGHT CORP. • DOMINION FABRICS, LTD.
GLASGO FINISHING COMPANY • LINCOLN BLEACHERY & DYE WORKS
MILLVILLE MANUFACTURING CO. • MT. HOPE FINISHING CO.
NAUMKEAG STEAM COTTON CO. • ROCK HILL PRINTING & FINISHING CO.
THE UNITED STATES FINISHING CO. • UTICA WILLOVALE BLEACHING CO.



BECCO TYPE

W-R-RAPP Continuous BLEACHING RANGES

BE AHEAD ...STAY AHEAD WITH WIESNER-RAPP

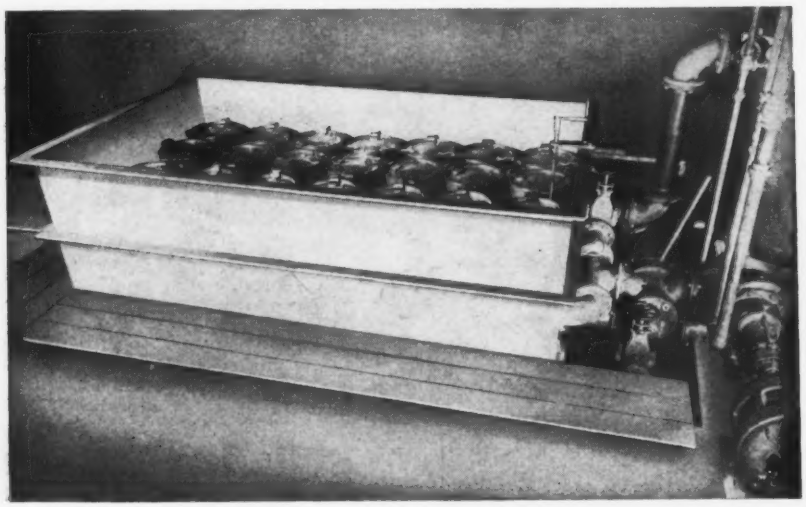
Obermaier Reg. Trade Mark

LOOK FOR THESE MARKS

Stienen Trade Mark

THESE NEW WORSTED TOP DYEING MACHINES

IMPROVE QUALITY AND PRODUCTION

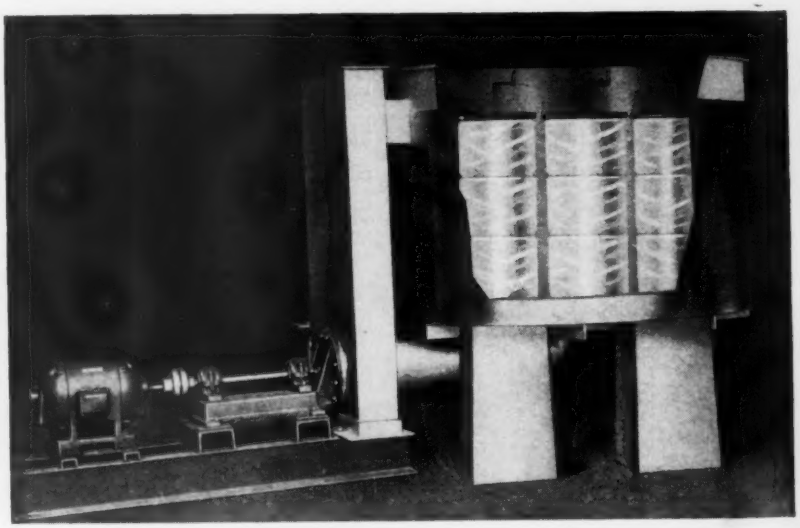


WORSTED TOP DYEING MACHINE

In this new machine each worsted top of 15 to 18 pounds is individually dyed, thus assuring maximum fiber protection. A connected vacuum station extracts moisture from the dyed top, without the tops being removed from their individual pots. All stainless steel construction.

ALSO THE LATEST SPINDLE SYSTEM WORSTED TOP DYEING MACHINE MODEL RAPR

All Stainless Steel Construction, especially designed for dyeing worsted tops by spindle system. Processes tops of different dimensions or uniform dimensions at the same time, giving thorough penetration in either case.



WORSTED TOP DYEING MACHINE—SPINDLE SYSTEM, MODEL RAPR

Standard Fabricators

355 WALTON AVENUE INCORPORATED NEW YORK 51, N. Y.

BUILDERS OF

COTTON AND WOOL DYEING MACHINES
FOR BEAMS—PACKAGES—RAWSTOCKS—SKEINS—RAYON CAKES—DYE SPINDLES—PERFORATED TUBES
CENTRIFUGAL PUMPS—EXTRACTORS AND DRYERS

DYE-SPRINGS

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Schneiter & Cia Ltd.
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Santiago, Chile

ARGENTINA & URUGUAY
Laser, Fleischer & Cia.
Paseo Colon 464
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BRAZIL
Escritorio Tecnico e Commercial
"Lodovico Lazzati Ltda."
Caixa Postal 994
Sao Paulo, Brazil, S. A.

COLOMBIA
Fernando
Cabo Olozaga
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Associated
Textile Engineers
43 Forbes Street
Fort, Bombay, India

HOLIDAY GAIETY FOR EVERYDAY GOODS

Imaginative COLOR lends glamour that gladdens the eye of young and old alike... quickens the urge to buy!

WHEREVER COLOR IS USED SPECIFY

National Aniline Dyes

NATIONAL ANILINE DIVISION • ALLIED CHEMICAL & DYE CORPORATION

40 RECTOR STREET, NEW YORK 6, N.Y.

BOSTON • PROVIDENCE • PHILADELPHIA • CHICAGO • SAN FRANCISCO • PORTLAND, ORE.
GREENSBORO • CHARLOTTE • ATLANTA • NEW ORLEANS • CHATTANOOGA • TORONTO

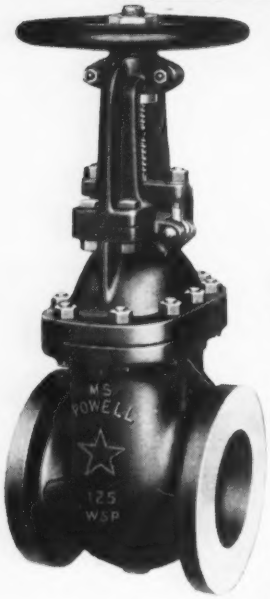
Only POWELL makes a *complete* line of valves for the CHEMICAL & PROCESS INDUSTRIES

More than a century ago, the Wm. Powell Company adopted a definite, long-range policy, namely, to concentrate on making valves—and valves only—for all branches of industry. As a result Powell has been able, through the years, to meet each new flow control requirement as it has arisen. Thus at any given time in more than a hundred years, the Powell Line has always been *complete*.

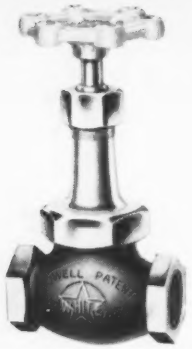
As of today, the Powell Line includes Bronze and Iron Valves of all required types, designs and sizes; Cast Steel Valves of all types in pressure classes from 150 to 2500 pounds; and Valves for Corrosion Resistance, available in the widest range of metals and alloys ever used in making valves.

The Wm. Powell Co., Cincinnati 22, Ohio

DISTRIBUTORS AND STOCKS IN ALL PRINCIPAL CITIES



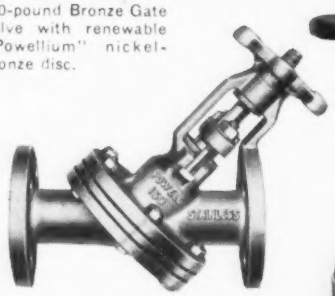
Large 125-pound Iron Body Bronze Mounted or All Iron Gate Valve.



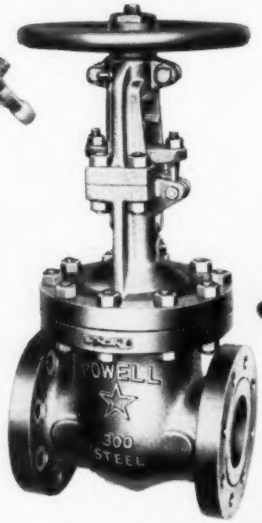
200-pound Bronze Globe valve with renewable stainless steel seat and regrindable, renewable "Powellium" nickel-bronze disc.

200-pound Bronze Gate Valve with renewable "Powellium" nickel-bronze disc.

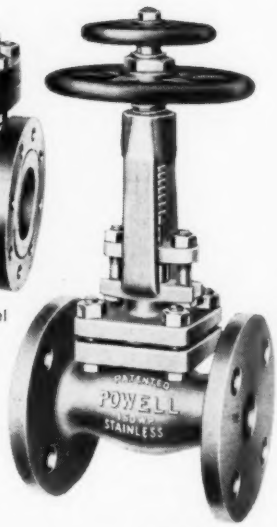
200-pound Bronze Regrinding Horizontal Swing Check Valve.



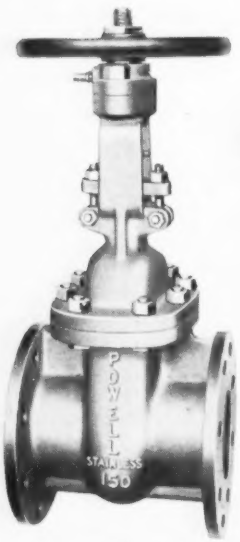
150-pound Stainless Steel Separable Body, Reversible Seat "Y" Valve.



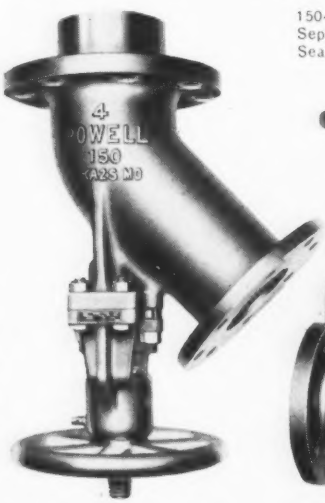
Class 300-pound Cast Steel O. S. & Y. Globe Valve.



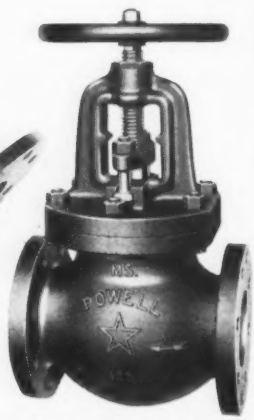
150-pound Stainless Steel O. S. & Y. Globe Valve with Powell Patented Seat Wiper.



New, standard 150-pound Stainless Steel O. S. & Y. Gate Valve.

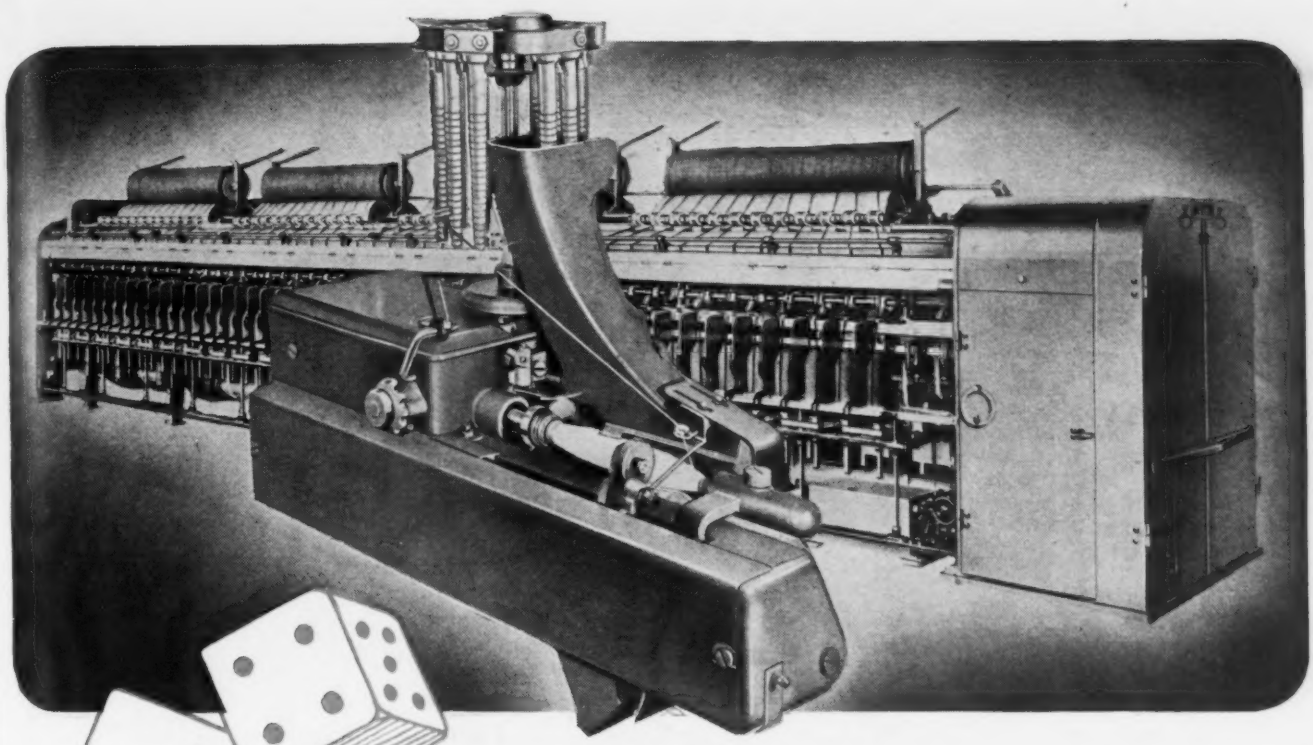


150-pound Stainless Steel Flush Bottom Tank Valve.



Large 125-pound Iron Body Bronze Mounted or All Iron Globe Valve.

POWELL VALVES



HERE'S A NATURAL COMBINATION

. . . *that isn't a gamble!*

Whitin large-package Wool Spinning Frames and Whitin-Schweiter Automatic Filling Bobbin Winders make a combination that you can bet on with certainty. There's no question of gambling on these two machines. They were designed and built to work together and they do just that.

With the Whitin Wool Spinning Frame you are assured of:

1. **Higher production — lower costs**
2. **Stronger, more even yarn**
3. **Large packages — more yarn — fewer knots**
4. **Up to 50% saving in floor space**

Add these special advantages of the Whitin-Schweiter Automatic Filling Bobbin Winder:

1. **Faster operation — speeds up to 5000 R.P.M.**
2. **Winds all types and lengths of filling bobbins up to 10⅛"**
3. **Independent spindle control means higher efficiency**
4. **Versatility — Rewinds not only wool, but many other fibres**

Mills using these two machines will soon discover — as have many others — that this is truly a natural combination that's sure to pay off in increased efficiency and large profits.

Write today for descriptive literature on both Whitin Model "E" Wool Spinning frames . . . and Whitin Automatic Filling Bobbin Winders.

Whitin MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS
CHARLOTTE, N. C. • ATLANTA, GA.

How to add *Life* to your CARD CLOTHING

To get best results from flexible card clothing, see that the fillets are put on the cylinder or doffer with the correct tension. Then to insure continued top performance and to add life to the clothing, redraw when necessary.

If the grinder discovers raised or lifted fillets, he should report it immediately, for such a condition permits the wire to be pushed underneath the fillet; the angle of the wire setting is changed and the carding capacity of the wire is destroyed. On the other hand if raised or lifted fillets are redrawn promptly, while the wire is still in good condition, efficient carding action is again assured and the life of the clothing will be greatly prolonged.

The best way to detect raised or lifted fillets and other card defects is to have your cards inspected at regular intervals. An Ashworth service man will do this for you, free of charge, and will arrange a repair program which will involve minimum expense and minimum loss of productive time.

Ask us about it.

PRODUCTS AND SERVICES

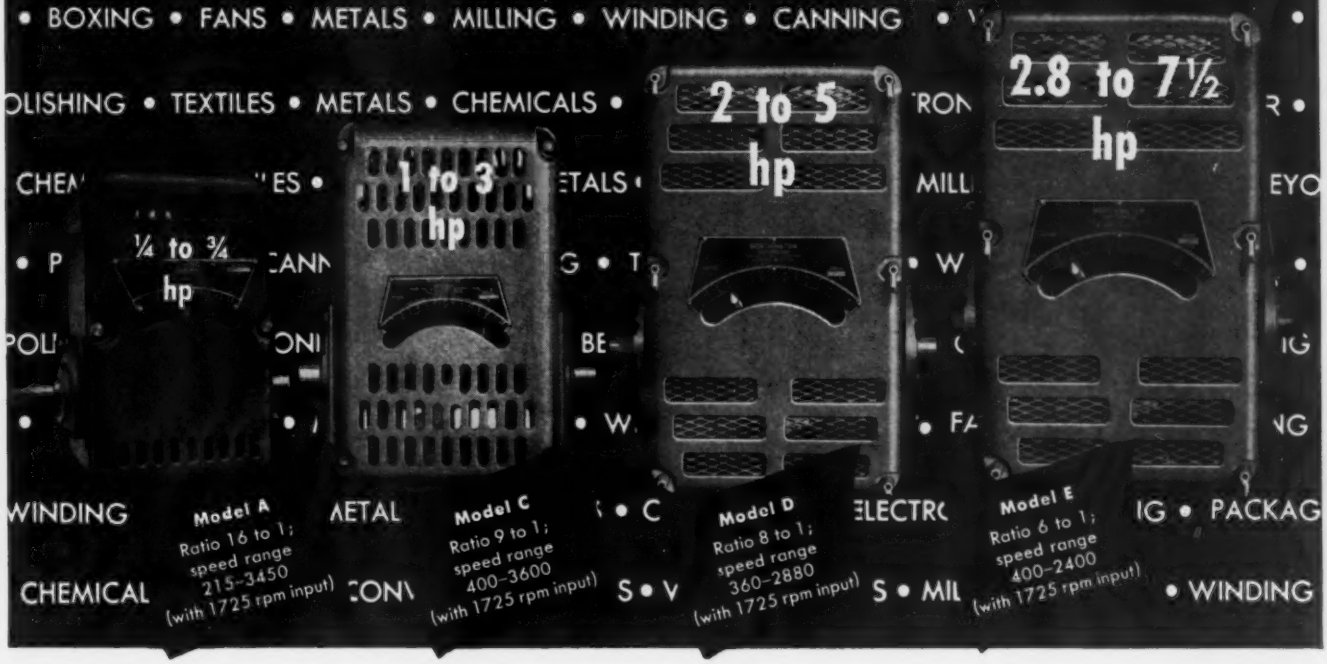
Card Clothing For Cotton, Wool, Worsted, Silk, Rayon And Asbestos Cards And For All Types Of Napping Machinery · Brusher Clothing And Card Clothing For Special Purposes · Lickerin Wire And Garnet Wire · Sole Distributors For Platt's Metallic Wire Lickerins And Top Flats Reclothed

Ashworth PIONEERS IN CARD CLOTHING

ASHWORTH BROS., INC.
AMERICAN CARD CLOTHING CO. (Woolen Div.)
Fall River*†‡ Worcester*‡ Philadelphia*†‡
Atlanta†‡ Greenville†‡ Charlotte†‡
Dallas‡ (Textile Supply Co.)
*Factory †Repair Shop ‡Distributing Point

3 FACTORIES · · · 6 REPAIR SHOPS · · · 7 DISTRIBUTING POINTS

Get Your Right Production Speeds FASTER !!!


¼ to ¾ hp
1 to 3 hp
2 to 5 hp
2.8 to 7½ hp
Model A
Ratio 16 to 1; speed range 215–3450 (with 1725 rpm input)
Model C
Ratio 9 to 1; speed range 400–3600 (with 1725 rpm input)
Model D
Ratio 8 to 1; speed range 360–2880 (with 1725 rpm input)
Model E
Ratio 6 to 1; speed range 400–2400 (with 1725 rpm input)

Worthington Allspeed Selectors are providing best production speeds with instant, stepless, precision control on machines where speed adjustments are desirable to: (1) Suit type of material being fabricated; (2) Control flow of material being processed or packaged; (3) Suit operators' abilities; (4) Maintain, smoothly, a constant speed suited to each individual job run. In getting the *right* speed for each requirement, most users report production increases from 50 to 200%!

Added Sizes, Bigger Stocks, Serve More Applications

You can now choose a Worthington Allspeed Selector from a wider hp range — ¼ to 7½ — four sizes with the same salient features: accessibility . . . adaptability to any machine, new or old . . . ball bearings throughout . . . rugged construction, typically Worthington. And Worthington's vast production facilities assure prompt deliveries.

Call Your Nearby Worthington Distributor

Get his quick, expert aid in choosing the right size and type of Selector, or write us direct for the Allspeed Selector Bulletin. Read why in variable drives, too, *there's more worth in Worthington. Worthington Pump and Machinery Corporation, Merchandising Division, Harrison, N. J. 36 District Offices throughout the U. S.*

SIMPLE . . . COMPACT TROUBLE-FREE

Tandem-belt design provides smoothest possible operation . . . exclusive, automatic, positive belt-tensioning . . . highest speed ratios in smallest space . . . only drive not requiring dismantling of unit to change belt.

WORTHINGTON

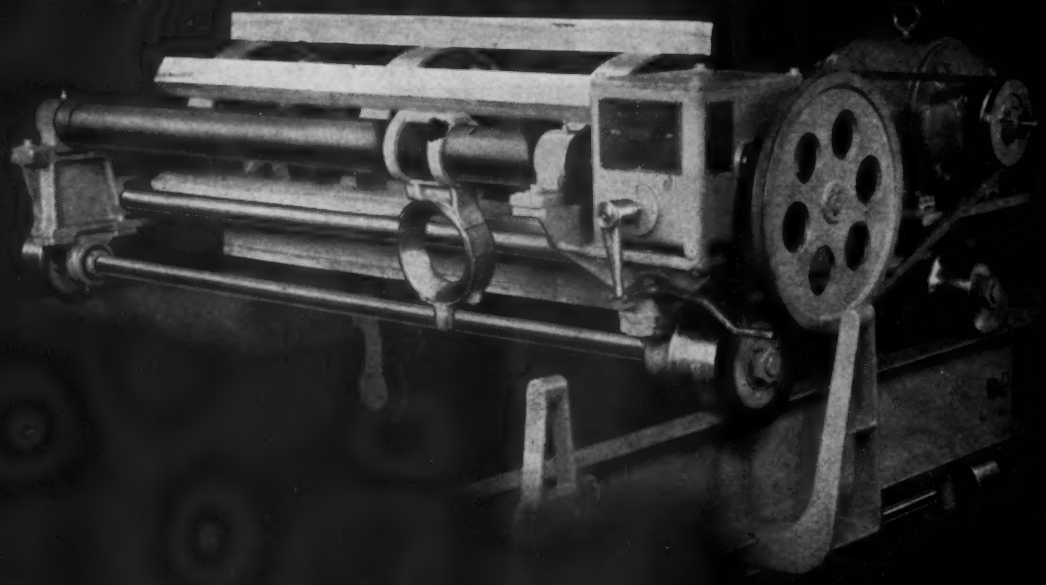
B7-8

PRODUCTS BASED ON MARKET RESEARCH

A size, style and type for every industrial requirement.

PERKINS AUTOMATIC BIN PILERS

PATENTED



You cannot afford to pile by hand

B. F. PERKINS & SON, INC.

ENGINEERS AND MANUFACTURERS

HOLYOKE • • • MASSACHUSETTS

Let a GULF Lubrication Engineer

WORK WITH YOU-FOR YOU!

To reduce wear in spindles and bolsters
Eliminate spindle gumming
Reduce power and maintenance costs
Reduce ends down

The Gulf Lubrication Engineer "in the picture" checks the lubrication of spinning frames in a prominent southern mill.

SCORES OF LEADING MILLS find the wide experience and broad practical knowledge of Gulf Lubrication Engineers invaluable—a source of real down-to-earth solutions for their maintenance and lubrication problems.

One of these trained specialists can help you eliminate guesswork in lubrication—assist you to get the full advantage of lubricants as engineering materials. For he is thoroughly familiar with all factors which affect lubrication efficiency—and he makes available a compiete line of quality oils and greases designed for service under widely varying operating conditions, no matter how severe.

When he makes a recommendation of the right Gulf lubricant and the most suitable method of application, you can be sure of satisfactory results.

If you are not already doing so, get the benefits of this helpful engineering service. Call in a Gulf Lubrication Engineer today and ask him to give you specific cases of mills, similar to yours, who have reduced power and maintenance costs through improved lubrication. Write, wire, or phone your nearest Gulf office.

Gulf Oil Corporation · Gulf Refining Company

Division Sales Offices:

Boston · New York · Philadelphia · Pittsburgh · Atlanta
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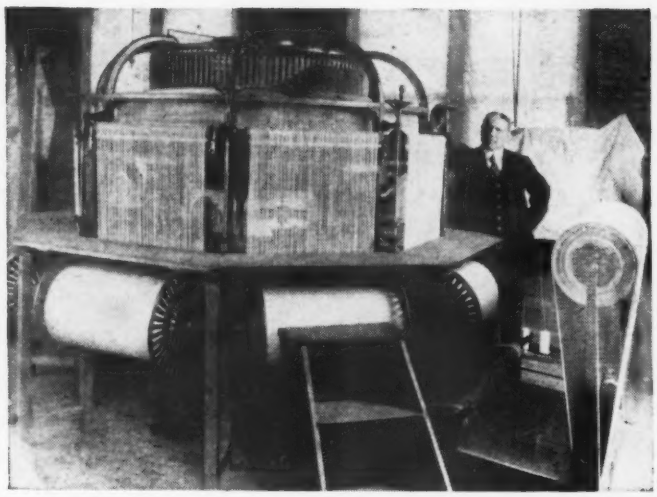
GULF INDUSTRIAL LUBRICATION

It Looked Like A Good Idea...



at the Time

Years ago, the unknown inventor built this circular loom to revolutionize the weaving industry! And every year, hundreds of individual attempts are made to improve loom design . . . some of them practical . . . many more impractical. But all of them, in one way or another, contribute something to progress.

The great majority of these attempts find their way, naturally, to the "Clearing House of Ideas" at C&K. All these ideas are carefully weighed and tested in the engineering and research departments. Only the best are passed on to you, in C&K Looms . . . and then only after they have passed muster with at least one of

C&K's 6 Sentries of Modern Weave-room Efficiency:

1. Does it increase Speed of Operation?
2. Does it increase Continuity of Operation?
3. Does it decrease the Work of the Operator?
4. Does it decrease Cost of Maintenance?
5. Does it improve Quality of Fabric?
6. Does it improve Appearance or Utility?

Crompton & Knowles Loom Works

WORCESTER 1, MASSACHUSETTS, U. S. A.
PHILADELPHIA, PA. • CHARLOT 1, N.C. • ALLENTOWN, PA.

CROMPTON & KNOWLES JACQUARD & SUPPLY CO., PAWTUCKET, R. I.

between Today's Knowledge . . . and Tomorrow's Looms

LINK-BELT "DE" SERIES

self-contained radial-thrust

Roller Bearings

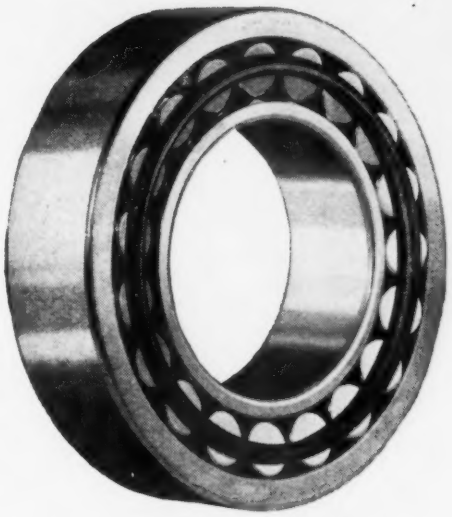
-- high load carrying capacity

-- no adjustment required

-- self-aligning

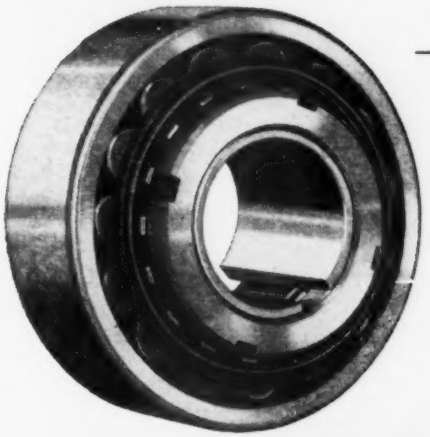
-- easily installed

One of the many stages of inspection in the manufacture of Link-Belt ball and roller bearings where accuracy and precision are assured.



Straight Bore Mounting

Series "DE" self-contained roller bearings for straight bore mounting are designed for press or shrink fits on shafting. They are turned and ground to precision diameters. This direct mounting of the bearing assures greatest smoothness in operation and increases its ultimate life.



Adapter Mounting

Series "DE" self-contained roller bearings for adapter mounting are designed for use with commercial shafting where ready means of removal and installation of bearing are advantageous. Tapered adapter sleeve supports inner race on shaft, providing a positive concentric mounting which adapts itself to commercial grades of cold finished shafting.

LINK-BELT

BALL AND ROLLER BEARINGS

LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Houston 2, Los Angeles 33, Seattle 4, Toronto 8. Offices, Factory Branch Stores and Distributors in Principal Cities. 10,947

H & B SPINNING

1 MAIN VERTICAL TWISTING RING
2 DOUBLE GREASE GROOVE VERTICAL TWISTING RING
3 DOUBLE ADJUSTABLE SPINNING RING IN HOLDER
4 COMMON SPINNING FLANGE RING
5 NARROW VERTICAL TWISTING RING
6 DOUBLE ADJUSTABLE SPINNING RING

Quality Rings

Rings for spinning and twisting are fashioned with full awareness of the meaning of quality at H & B. They are designed, turned and inspected by skilled engineering craftsmen, and are recognized throughout the textile industry as unsurpassed in quality of manufacture and performance.

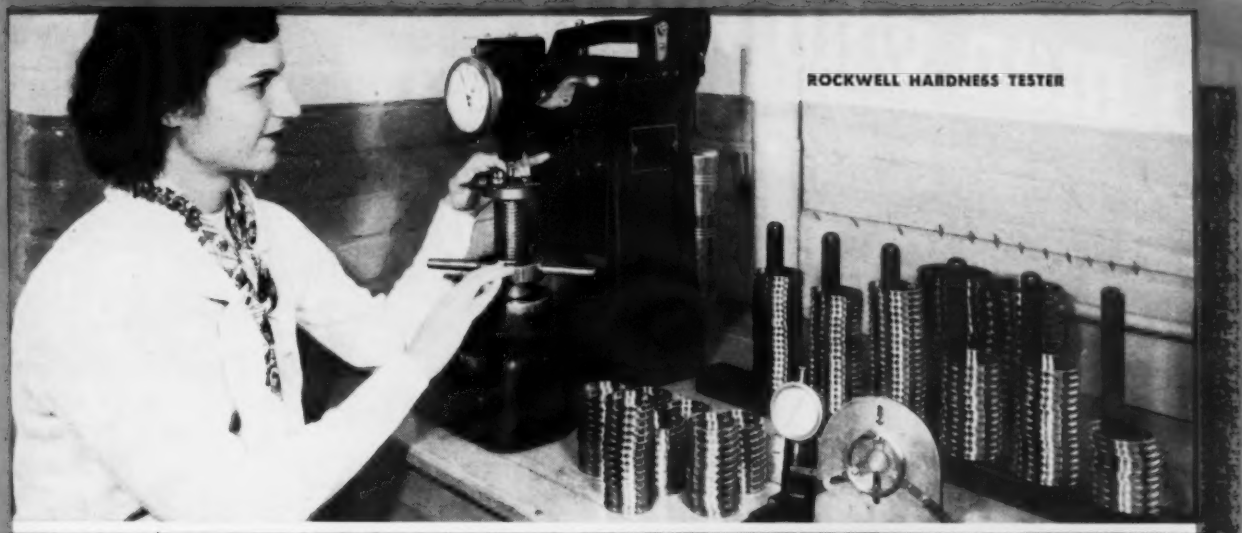
Completely modern in design, H & B rings are distinguished by several exclusive innovations. One such feature, recently designed and developed, materially reduces wear on both ring and traveler.

H & B AMERICAN

Builders of Modern

FACTORY EXECUTIVE OFFICES AND EXPORT

AND TWISTING...



ROCKWELL HARDNESS TESTER

RING INSPECTION

From the beginning, modern precision turning equipment in the hands of skilled workers fashions the finished product to exact standards of smoothness and roundness. Proper heat treating hardens the steel for lasting durability. Inspection assures complete conformity with our rigid standards and rejects defective rings, however slight the flaw. The burnished luster of the rings must be perfect, their roundness and hardness correct to the most exacting degree.

When you order rings from H & B you know that every detail in their design and manufacture means superior ring performance on your spinning and twisting frames. Our rings take an important place in the overall picture of the achievement of quality at H & B.

MACHINE CO.

Textile Machinery

DIVISION PAWTUCKET, RHODE ISLAND, U.S.A.

BRANCH OFFICES

ATLANTA, GA.
815 CITIZENS AND SOUTHERN NATIONAL BANK BUILDING

CHARLOTTE, N. C.
1201 JOHNSTON BUILDING

To men who worry about the cost of "solid" protection . . .

★ NICKEL-CLAD . .
★ STAINLESS-CLAD . .
★ INCONEL-CLAD . .
★ MONEL-CLAD STEELS

CLADDING
STEEL

Profit by the experience of hundreds of men in industry. They've discovered that Lukens Clad Steels give them solid metal protection at a lower cost. Here's how—

First, they determine what corrosion-resistant metal will provide the protection they need: nickel, stainless steel, Inconel or Monel. (If the answer isn't immediately available in our files, we help find it.) Then they reason, "Why buy solid metal in that alloy when it's only the face that's exposed to attack?"

The result? They specify a Lukens Clad Steel—ASME specification steel faced with the right corrosion-resistant metal permanently bonded to it. It introduces no unusual fabricating problems. Thickness of the cladding is uniform and suited to the requirements of each job.

Let our engineers help you gain solid metal advantages with clad steel economy. Complete information on Lukens Stainless-Clad Steels is contained in Bulletin 338; on Nickel-Clad, Inconel-Clad and Monel-Clad in Bulletin 255. Lukens Steel Company, 406 Lukens Building, Coatesville, Pennsylvania.

LUKENS
Nickel-Clad Stainless-Clad
Inconel-Clad Monel-Clad
STEELS
★

SOLID METAL ADVANTAGES WITH CLAD STEEL ECONOMY

LIFT YOUR PROFITS
with a HYSTER

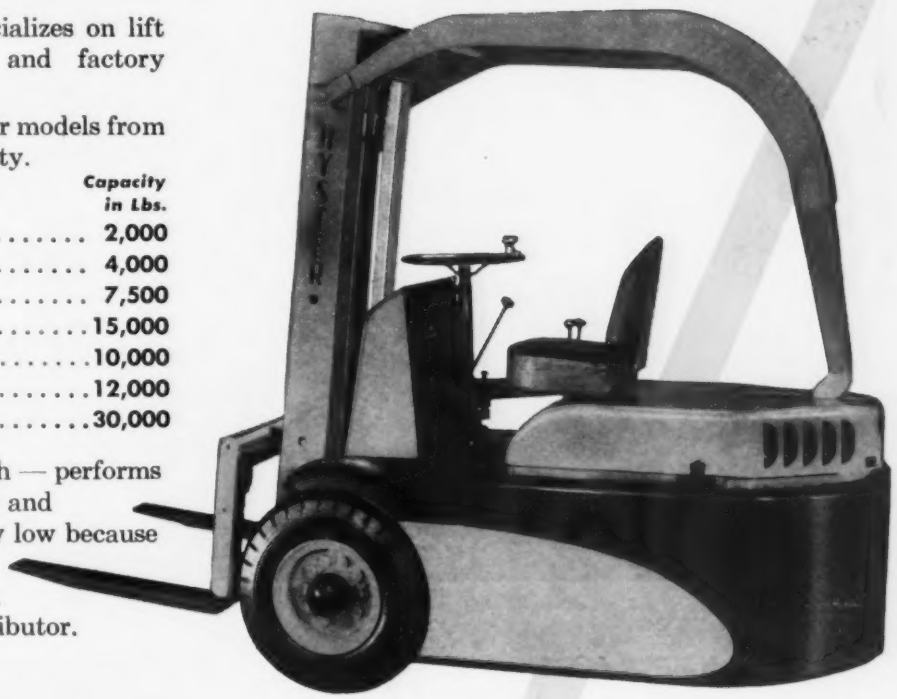
THREE REASONS FOR BUYING A HYSTER LIFT TRUCK NOW:

1. You can get current delivery.
2. Your Hyster distributor specializes on lift truck service — has parts and factory trained mechanics.
3. Pneumatic tires on all 7 Hyster models from 2000 lbs. to 30,000 lbs. capacity.

Model	Capacity in Lbs.
HYSTER "20" FORK TYPE	2,000
HYSTER "40" FORK TYPE	4,000
HYSTER "75" FORK TYPE	7,500
HYSTER "150" FORK TYPE	15,000
HYSTER KARRY KRANE	10,000
HYSTER "M" STRADDLE TRUCK	12,000
HYSTER "MH" STRADDLE TRUCK	30,000

Hyster moves fast — stacks high — performs surely and smoothly. Operating and maintenance costs are extremely low because pneumatic tires save floors, are easier to load, can go anywhere.

See your nearest Hyster distributor. Write for catalogs.



HYSTER "40" — 4000 pounds capacity. Handles 7 out of 10 materials handling jobs. Fast. High lift. Heavy duty car loader.

HYSTER COMPANY

THREE FACTORIES

2922 N. E. CLACKAMAS ST., PORTLAND 8, OREGON
1822 NORTH ADAMS STREET, PEORIA 1, ILLINOIS
1022 MEYERS STREET, DANVILLE, ILLINOIS

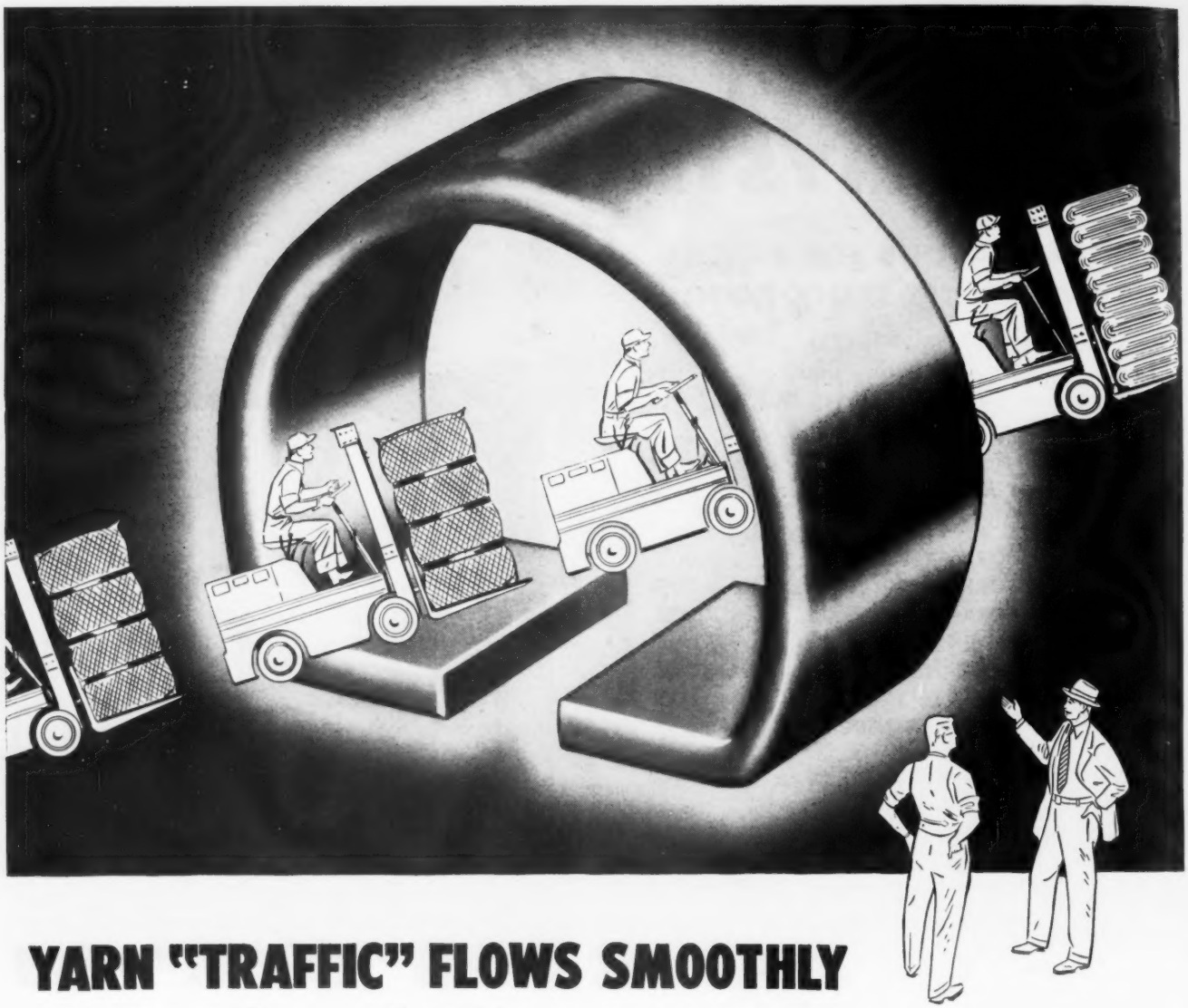
HYSTER

See all Hyster models at Booth 319 and 331, Materials Handling Show, Cleveland Auditorium, January 12-16.

SEE YOUR HYSTER DISTRIBUTOR FOR CURRENT DELIVERY

ALASKA—Northern Commercial Co.
BROOKLYN, N. Y.—A. S. Rampell
BUFFALO, N. Y.
Rapids Handling Equipment Co.
CALGARY, ALTA.
A. R. Williams Machy. Western, Ltd.
CHICAGO, ILL.—Hyster Company
CINCINNATI, O.
Oral T. Carter & Associates
CLEVELAND, O.—Morrison Company
DALLAS, TEX.—C. H. Collier Co.
DENVER, COLO.—Paul Fitzgerald
DETROIT, MICH.—Bentley & Hyde
GRAND RAPIDS, MICH.
Bentley & Hyde
HALIFAX, NOVA SCOTIA
A. R. Williams Machy. Co., Ltd.
HONOLULU, T. H.—Electric Steel Foundry Co.
INDIANAPOLIS, IND.—Central Rubber & Supply Co.
JACKSONVILLE, FLA.—L. S. Teague Equipment Co.
KANSAS CITY, MO.—Industrial Power Equipment Co.
LOS ANGELES, CALIF.—Hyster Company
LOUISVILLE, KY.—Embry Brothers, Inc.
MILWAUKEE, WIS.—Hyster Company
MINNEAPOLIS, MINN.—W. S. Nott Company
MOBILE, ALA.—S & T Equipment Co., Inc.
MONTREAL, P. Q.—A. R. Williams Machy. Co., Ltd.
NEW ORLEANS, LA.—Hyster Company of Louisiana, Inc.
NEW ROCHELLE, N. Y.—Eastern Industrial Sales Co.
OTTAWA, ONT.—A. R. Williams Machy. Co., Ltd.
PHILADELPHIA, PA.
Rapids Handling Equipment Co. of Phila., Inc.
PHOENIX, ARIZ.—Equipment Sales Company
PITTSBURGH, PA.—Equipco Sales Company
PORTLAND, ORE.—Hyster Sales Company
ST. JOHNS, N. F.—City Service Company, Ltd.
ST. LOUIS, MO.—Wharton L. Peters
SALT LAKE CITY, UTAH—Arnold Machinery Co.
SAN FRANCISCO, CALIF.—Hyster Company
SEATTLE, WASH.—Hyster Company
TORONTO, ONT.—A. R. Williams Machy. Co., Ltd.
VANCOUVER, B.C.
A. R. Williams Machy. Western, Ltd.
VICTORIA, B.C.—A.R. Williams Machy. Western, Ltd.
WINNIPEG, MAN.
A. R. Williams Machy. Western, Ltd.
YUKON TERRITORY—Northern Commercial Co.

In addition to above, Hyster Export Dealers are located in 30 foreign countries.



YARN "TRAFFIC" FLOWS SMOOTHLY

. . . *through Victors*

SINCE MOST MILLS' entire output passes through travelers — whether yarn traffic is speeded or stalled depends on your selection.

Which are your travelers — bottlenecks or broad highways? Assuming equipment is in proper condition, if the traveler is **wrong**, the flow of work through the mill will be slowed up at the spinning or twisting, production will lag, quality will suffer, and profits will sag. If the traveler is **right**, you can meet output schedules, cut down waste, and upgrade quality.

With the many new developments in synthetics and blends, it is becoming more and more difficult to be sure the traveler you use is **right** for the job. To save valuable time in setting up the smooth-running spinning and twisting you want, you need up-to-the-minute information.

There's a man near you who knows what you want to know about choosing travelers. He's the Victor Service Engineer and his job is to keep abreast of every new development. He will help you select the **right** traveler for any fiber, any blend you may be running. Write, wire, or phone the nearest Victor office for prompt service.

Keep a Step ahead with

VICTOR Ring Travelers

VICTOR RING TRAVELER COMPANY

PROVIDENCE, R. I. . . . . 20 Mathewson St. . . . . Tel. Dexter 0737

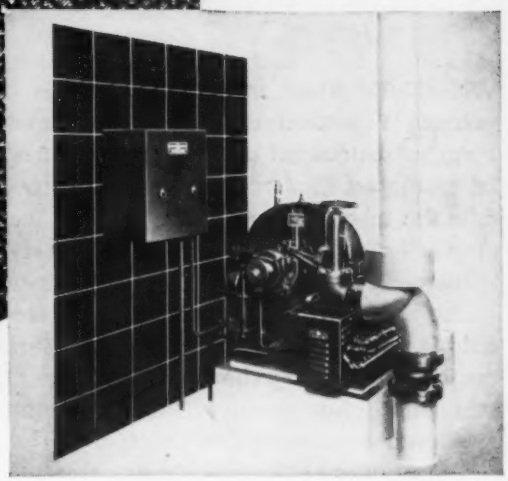
GASTONIA, N. C. . . . . 358-364 West Main Ave. . . . . Tel. 247

SPEED CONTROL

...at your fingertip!

WITH THIS

TURBINE DRIVE



No need to shut down for speed changes when you drive your machines with this G-E steam turbine. Speed of the drive can be changed easily during operation by simple push-button control. This control—placed where it's most convenient—permits smooth, continuous speed adjustment throughout the operating range.

If you anticipate frequent speed changes during operation, "pre-set" control, with a separate push button for each pre-selected speed, can be provided.

WIDE RANGE

You have a wide range of speeds at your fingertip. The Type DE turbine can be designed to operate over speed ranges as great as 30 to 1, with no loss in accuracy.

NO HUNTING

Hunting and speed fluctuation are eliminated. This helps assure uniformity in your product, and reduces the chances of spoilage.

HIGH ACCURACY

The electrical governing system used on this turbine gives speed control accuracy far in advance of previous controls. Under normal operating conditions, this governor holds speed within ¼ of one per cent.

Such accuracy in your machine drives can really pay off in greater output and improved quality control.

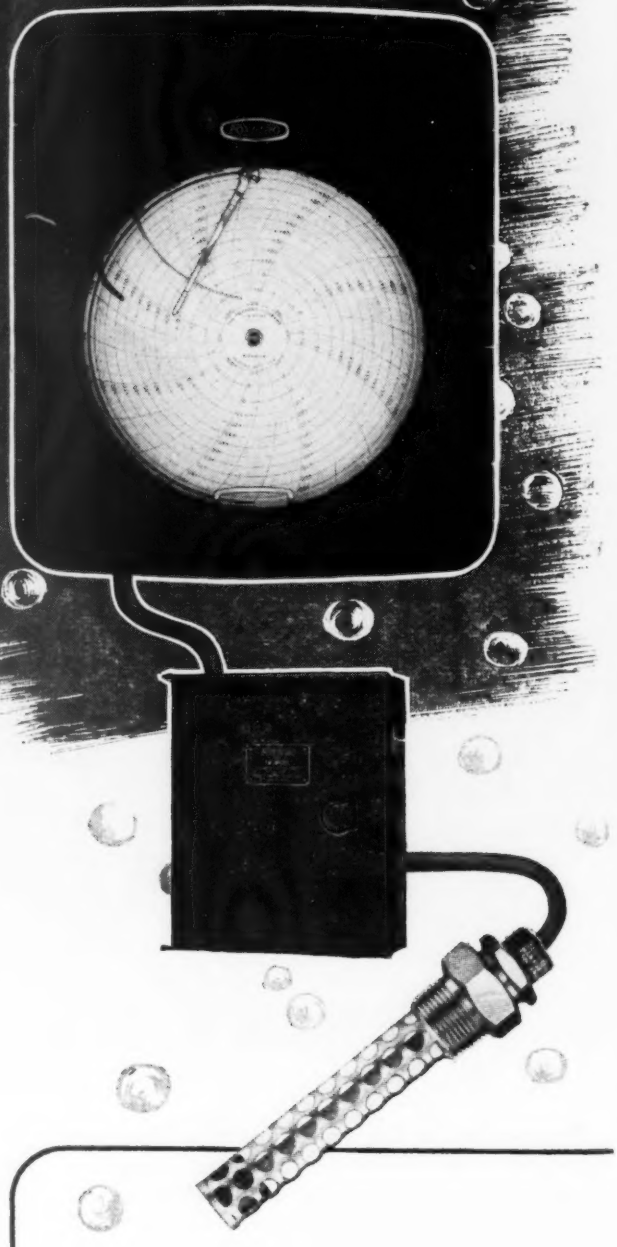
GIVE YOUR OUTPUT A BOOST

Our turbine specialists will be glad to show you how these easily controlled, wide-range drives can step up the output of your processing machines. Get in touch with the nearest G-E Apparatus Sales Office, or write Apparatus Department, General Electric Co., Schenectady 5, N. Y.

GENERAL ELECTRIC

NEW! UNIQUE DEW POINT CONTROL

. . . for improving product quality



WHEREVER exact moisture content is critical to the process or the material, the new Foxboro system of Dew Point measurement offers interesting new possibilities for increased efficiency or product improvement. It permits the measurement and control of humidity with a simplicity and accuracy never before available in an industrial instrument.

The humidity sensitive element, the "Dewcel", is uniquely different from any other measuring device. In conjunction with Foxboro Recording or Controlling Instruments, it has several distinct advantages over other systems of measuring dew point.

1. *Records directly in dew point, with easy conversion to relative or absolute humidity.*
2. *Has a wide range of working temperatures.*
3. *Neither adds nor removes water from atmosphere.*
4. *Sustained high accuracy of measurement.*
5. *Measures at sub-zero temperatures.*
6. *Can be used with either filled-type or electronic thermal systems.*
7. *Requires no water box or circulation of air.*

This advanced system is especially suitable for moisture measurement or control in cabinets, dryers, storage rooms or conditioned process rooms—or for measuring outdoor atmosphere. Investigate its possibilities for your processing. Write for Bulletin 407. **The Foxboro Co., 84 Neponset Ave., Foxboro, Mass., U. S. A.**

This illustration shows the Foxboro Dynalog Dew Point Recorder, which utilizes the exclusive Dynalog electronic temperature measuring system. It also shows the power unit and the unique Dewcel element. A filled-type Dew Point Recorder, as well as pneumatic or electric control actions, are also available.

This System gives direct recordings of dew point from —20°F. to +160°F. at working temperatures from —20°F. to +220°F. Readings easily converted to absolute or relative humidity when desired.

FOXBORO
REG. U. S. PAT. OFF.

RECORDING · CONTROLLING · INDICATING INSTRUMENTS

with Cyanamid SULFONATED OILS

You can't afford costly "gaps" in your operations today. A good competitive position won't permit it. That is why your *wise choice* of sulfonated oils supply can be "the stitch that saves" you time . . . expense . . . and many processing headaches. Call . . . wire . . . write Cyanamid about your requirements . . . for we are prepared to step in and deliver absolute uniformity and dependability in every drum . . . every carload.

A Wide Range of Superior Oils

is becoming more generally available as Cyanamid's channels of raw material supply continue to open up.

AMONG CYANAMID PRODUCTS FOR THE TEXTILE INDUSTRY ARE . . . AQUASOL* Sulfonated Castor Oils, NO-ODOROL* Finishing Oils, DECERESOL* OT Wetting Agents, Penetrants, Softeners, Finishes, Sizing Compounds, PARAMUL** 115 Water Repellent, and other specialties and Heavy Chemicals.

For low-cost chemical equivalent of distilled H_2O . . . FILT-R-STIL* Demineralizing Units.

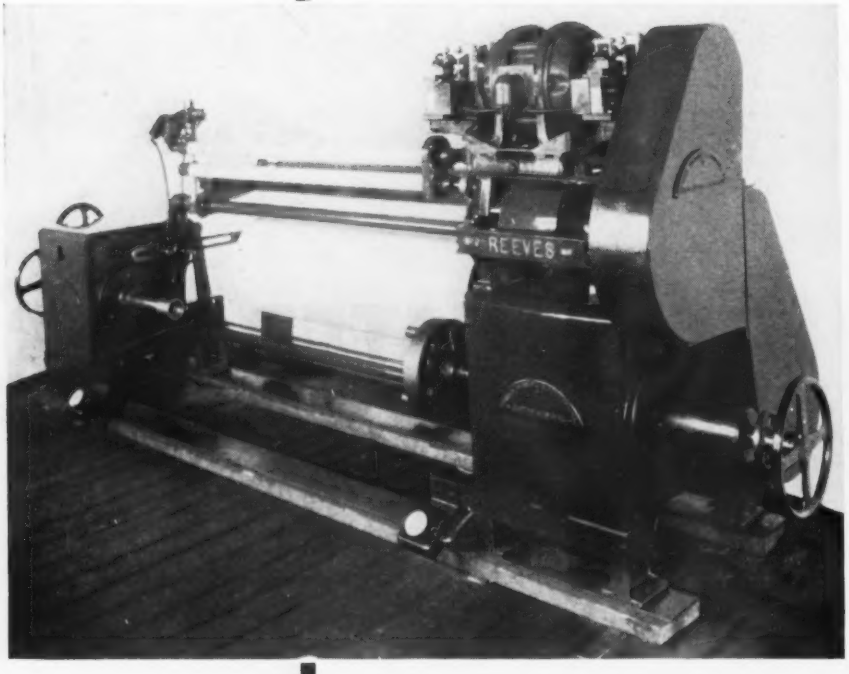
**Trade-mark *Reg. U. S. Pat. Off.

Industrial Chemicals Division

AMERICAN CYANAMID COMPANY

30 ROCKEFELLER PLAZA • NEW YORK 20, N. Y.

for better DYE BEAMS



The Cocker HIGH SPEED SPINDLE DRIVEN BEAM WARPER

In common with other Cocker Warp Preparatory Equipment, this High Speed Spindle Driven Beam Warper combines high speed operation with minimum vibration and provides accurate, automatic control at all points.

Extra heavy frames and bearings keep vibration to a minimum. Magnetic Brakes, Electrical Automatic Counter Clocks, and Variable Speed Transmissions assure constant and controlled yarn travel. Adjustable snubbers on the Presser Roll can be set to produce either hard or soft beams. Push buttom stations regulate stopping, starting and jogging.

This Cocker High Speed Spindle Driven Beam Warper will produce better dye beams. Write for full details.

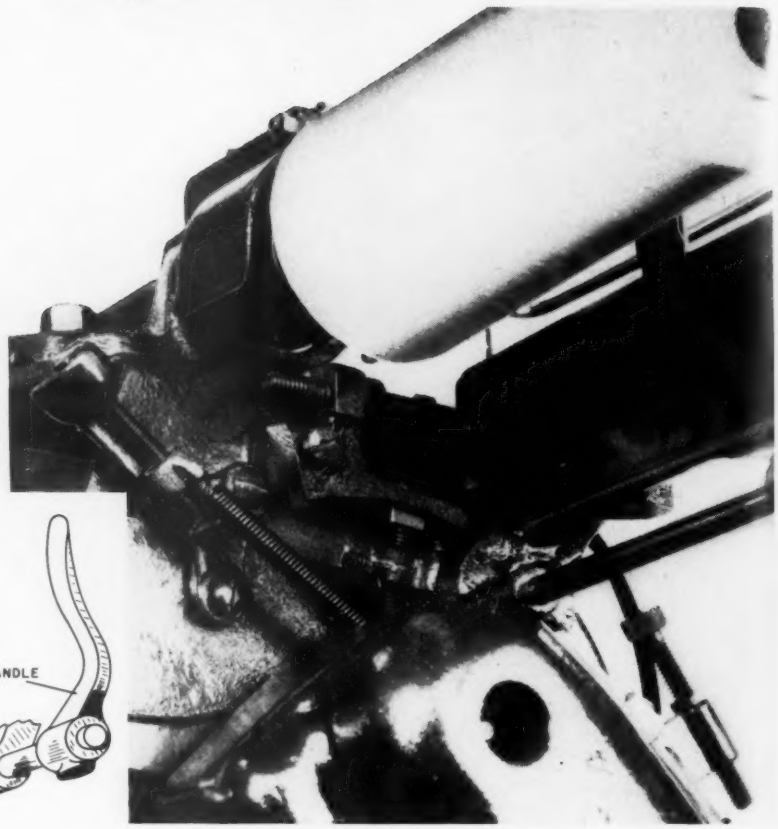
COCKER
MACHINE and FOUNDRY
COMPANY
GASTONIA, NORTH CAROLINA

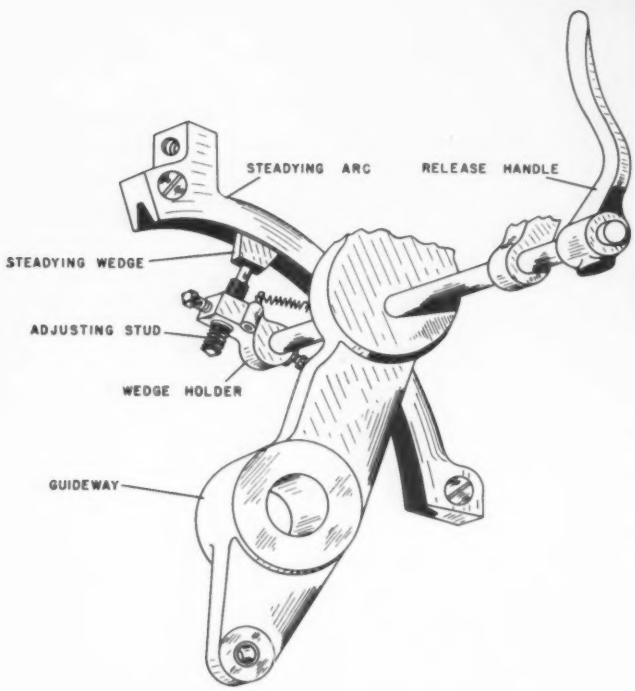
World's Largest Designers and Builders of Complete Warp Preparatory Equipment.

Franklin Process COLORS
SELL QUALITY FABRICS
PROVIDENCE • PHILADELPHIA • GREENVILLE • CHATTANOOGA
NEW YORK REPRESENTATIVE: 40 WORTH STREET

Foster Model 75

WHY IT PRODUCES SUPERIOR PACKAGES



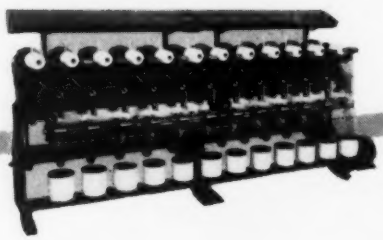


FEATURES

Loose shoe type • No sticking • Works better with oil and occasional oiling is recommended • Entirely separate from knock-off motion • Rigidly mounted on main housing • Wedge easily adjusted • Cannot get out of adjustment • Little maintenance

THERE are many reasons why the Foster Model 75 produces packages practically perfect in roundness, uniformity of wind, and density, absence of underwind, etc. These reasons include sturdy construction with comparative absence of vibration, ball bearing spindles, convex base of cone and accurately machined parts, but one of the most important reasons is the exclusively designed STEADYING WEDGE AND ARC in this machine.

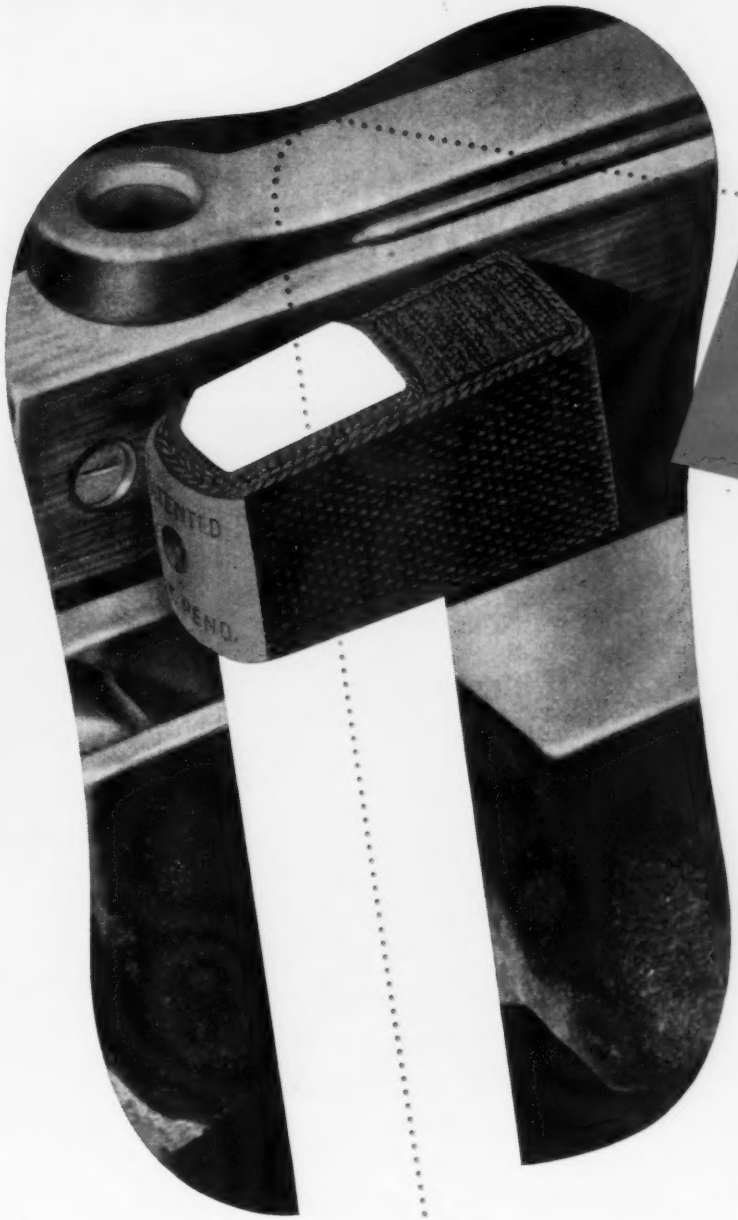
The function of this device is to steady the guideway or traverse back and eliminate chatter caused by traverse motion or pounding of guideway against package. Wedge allows guide to move steadily away from the cone but not back against it.



FOSTER MACHINE CO.

WESTFIELD, MASSACHUSETTS

Southern Office: Johnston Building, Charlotte, N. C.; Canadian Representative: Moss, Whitehead & Company, Limited, University Tower Building, 660 Ste. Catherine Street West, Montreal, Quebec. European Representative: Muschamp Taylor, Limited, Manchester, England



No equal for "staying put" on the picker stick

Dayton De Luxe Loop Pickers are virtually "built around a hole" designed to meet all characteristics of the picker stick. Practical design includes a slightly flared bottom so that when the picker is started onto the stick the taper prevents tearing of the loop ply and facilitates centering. When the Dayton picker is driven onto the stick, there is nothing to break . . . nothing to expand. Dayton design, plus specially-patented symmetrical loop construction, anchors it into position and *holds it in place indefinitely.*

Too, the specially-designed picker stick hole includes "forward tilt". Another Dayton feature which insures *correct shuttle contact.* For the complete story write:

TEXTILE PRODUCTS DIVISION
DAYTON RUBBER
Main Sales Office: Woodside Building, Greenville, S. C.
Factory: Waynesville, N. C.

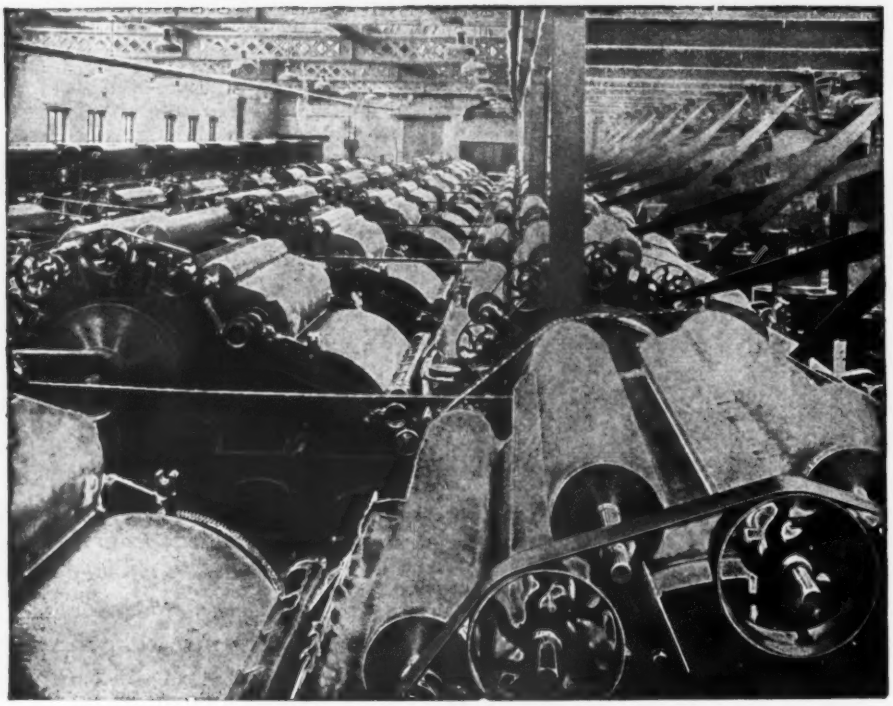
ADDITIONAL REASONS WHY YOU SHOULD SPECIFY DAYTON LOOP PICKERS

- Loom can be boxed the same at all times.
- Keep their shape.
- Easy to install—fit the stick.
- Made of especially woven fabric.
- Roughness reduced to absolute minimum.
- Jerked-in fillings are reduced to a minimum.
- Cuts picker costs as much as 50%.
- Only picker built to stand pounding of high-speed loom.
- "Stay put" on stick.
- All pickers uniform in size.

Dayton Rubber

THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER

PLATT'S
WORSTED CARDING ENGINES



Panoramic view of a layout showing Worsted Carding Engines in operation.

Machines constructed in the greatest variety suitable for all types of Wools.

- ***RIGID CONSTRUCTION***
- ***EASE OF ADJUSTMENT***
- ***MAXIMUM PRODUCTION***

PSS LTD

Prince·Smith & Stells Ltd.

INCORPORATING TAYLOR WORDSWORTH & Co LTD

CONCESSIONAIRES FOR ALL WORSTED MACHINERY MANUFACTURED BY PLATT BROTHERS & CO. LTD. ASA LEES & CO. LTD.

KEIGHLEY

ENGLAND

***Agents*, U. S. A. and Canada—English system machinery. Atkinson, Haserick & Co., 21 Congress St., Boston, Mass. *Agents*, U. S. A.-French system machinery, The Blake Electrical Mfg. Co., 178 Atlantic Ave., Boston 10, Mass.**

MAKE THE FABRICS THAT BOWL 'EM OVER

WITH BEAUTIFUL, MAGICALLY PRACTICAL

Firestone *Velon*®

Velon fibre gives you magic selling-power . . . because for the first time "impractical" colors become practical, woven designs more beautiful . . . because *Velon* is non-absorbent, can be cleaned so quickly and completely . . . because the wonderful fabrics you can make defy dirt, staining, shrinkage, fading, wear and age. *Velon* will expand your production. Write Firestone, Akron.

®TRADE MARK

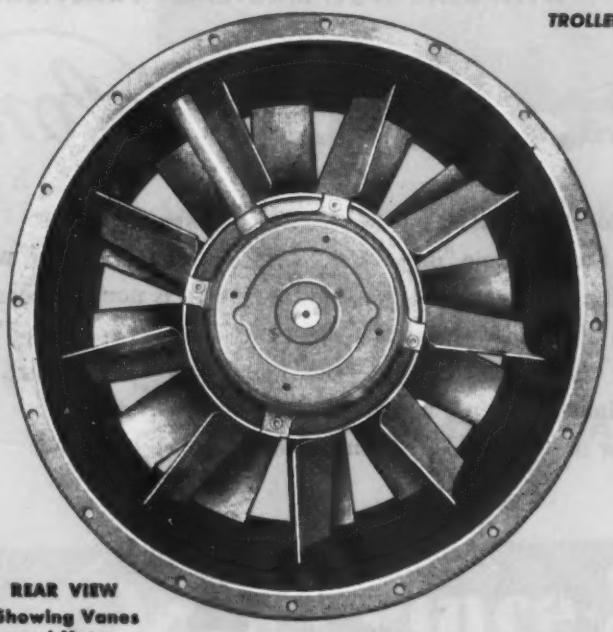
Announcing

"SERIES 1000"

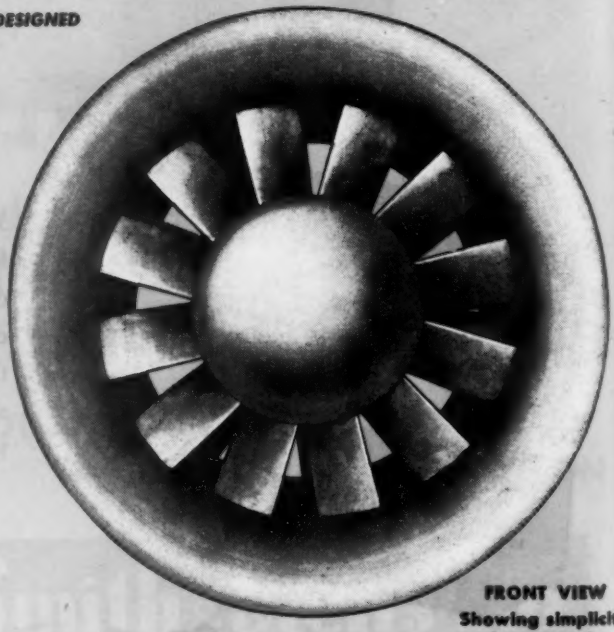
JOY

AXIVANE FANS

TROLLER DESIGNED



REAR VIEW
Showing Vanes and Motor



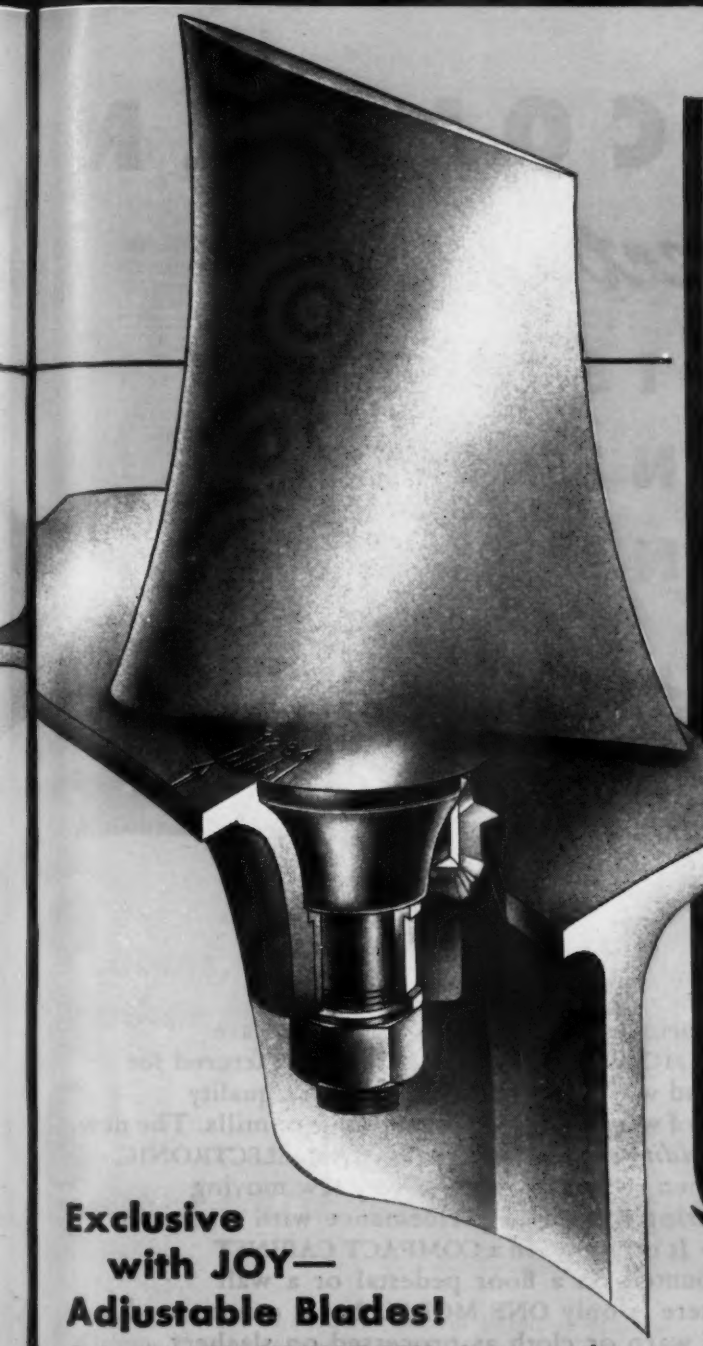
FRONT VIEW
Showing simplicity of construction

A complete family of fans to cover every general industrial use

The "Series 1000" is a stock line with an unequalled range in sizes and capacities.

Volumes up to 100,000 C.F.M. Pressures up to 9.6" W.G.
Housing Diameters 18" to 60"

B 11459



MORE COMPACT

Joy AXIVANE Fans are built around the motor. The fan housing becomes an actual part of the duct system, producing a compact design impossible with a centrifugal fan. The compact construction insures lighter weight.

EASIER TO INSTALL

Because of its in-line design which makes the Joy AXIVANE Fan an integral part of the duct system, heavy foundations, complicated duct off-sets and elbows, drives, and guards are eliminated. Joy Series 1000 AXIVANE Fans can be installed quickly and easily, even by relatively inexperienced or unskilled labor.

MORE EFFICIENT

Stationary straightener vanes, located immediately behind the rotor, partially recover the rotative energy imparted to the air by the rotor, and re-establish axial flow to the air leaving the vanes. This eliminates excess turbulence, increasing efficiency by decreasing pressure loss.

The AXIVANE Fan takes advantage of the most aerodynamically efficient blade and straightener vane design.

QUIETER

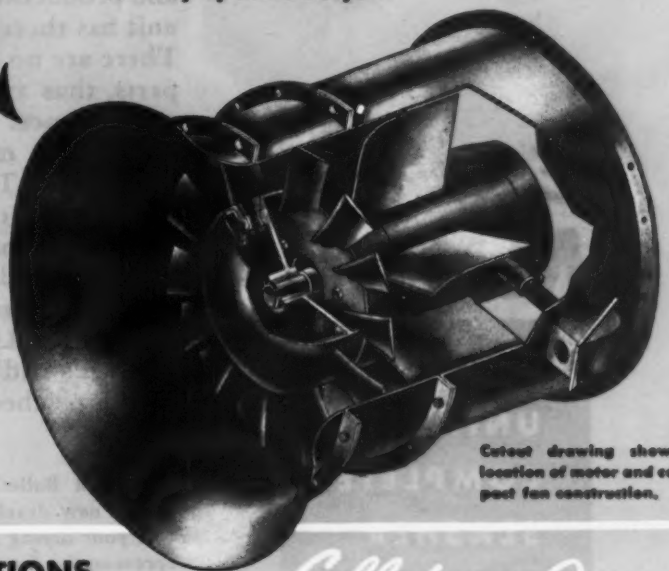
For equal weight and space the AXIVANE Fan is quieter than the centrifugal type fan for any specific duty.

Exclusive with JOY— Adjustable Blades!

Only the JOY AXIVANE FAN gives you the *extra* FLEXIBILITY of ADJUSTABLE BLADES.

ADJUSTABLE BLADES, a Joy development, insure the ultimate in performance flexibility. The factory blade setting can be quickly changed to provide either a wide pressure range for any particular volume or a change in volume simply by loosening a lock nut.

ADJUSTABLE BLADES permit on-the-job correction for miscalculation of duct resistance or poorly installed duct work.



Cutout drawing showing location of motor and compact fan construction.

TYPICAL JOY AXIVANE FAN APPLICATIONS

Apartment Houses
Aircraft
Air Conditioning Systems
Auditorium Ventilation
Automotive
Boiler Draft
Caves
Chemical Plants
Cleaners
Cooling Towers
Dehumidifiers
Diesel Engine Cooling
Dryers
Dust Collectors
Evaporative Condensers
Fan Heating Systems
Filtering Systems
Generator Cooling
Grain Drying
Hay Driers
Hair Dryers
Hospitals
Hotels
Humidifiers
Kitchens
Laundries
Mines
Oil Burners
Pharmaceutical Mfg.
Pneumatic Conveyors
Railroad Cars
Refineries
Residence Heating
Schools
Ships
Stokers
Textile Mfg.
Tunnels
Unit Coolers
Unit Heaters
Vacuum Cleaners
Wind Tunnels

Call for a Joy Engineer

Please write for complete illustrated and descriptive Bulletin.

JOY MANUFACTURING COMPANY

GENERAL OFFICES: HENRY W. OLIVER BUILDING, PITTSBURGH 22, PA.

BARBER-COLMAN

Electronic MOISTURE CONTENT CONTROL

A New and Improved All-Electronic Controller

The operating principles of this new controller are the same as the MCC unit which we have manufactured for eight years — and which has helped to increase quality and production of warp and cloth in hundreds of mills. The new unit has these *additional features:* • It is ALL-ELECTRONIC. There are no open relay contacts and very few moving parts, thus assuring maximum performance with minimum maintenance. • It is housed in a COMPACT CABINET that can be mounted on a floor pedestal or a wall bracket. • There is only ONE MODEL, but it can be used for all types of warp or cloth as processed on slashers, dryers, or tenters. • CALIBRATION adjustments are improved and simplified. • An IMPROVED CONTROL CIRCUIT will handle any type of variable-speed drive. • ACCESSIBILITY is greatly improved because all adjustments and all parts requiring maintenance can be reached by opening a single door.

Electronic **M.C.C.**

ANOTHER UNIT OF COMPLETE SLASHER CONTROL BY BARBER-COLMAN

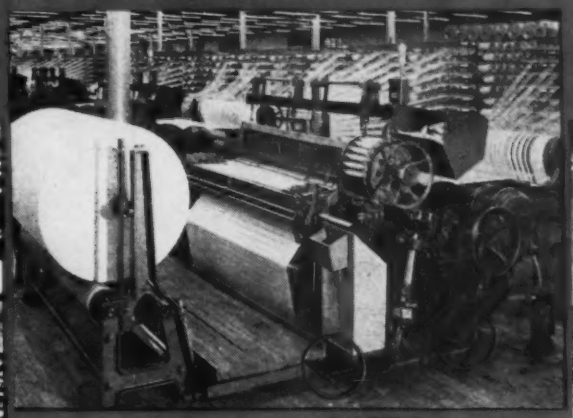
SEND FOR Bulletin F3156 for complete information on this new development. Learn how it can help to solve your drying problems. Ask your Barber-Colman representative for specific advice on your requirements.

Barber-Colman Company

45 YEARS EXPERIENCE SERVING TEXTILE MILLS

ROCKFORD ILLINOIS BOSTON MASSACHUSETTS GREENVILLE SOUTH CAROLINA GREENSBORO NORTH CAROLINA ATLANTA GEORGIA

EXCELSIOR MILLS



TOP — Draper Special XP Loom
BOTTOM — Whitin Twister

mounts Looms, Twisters and other Machinery on

UNISORB

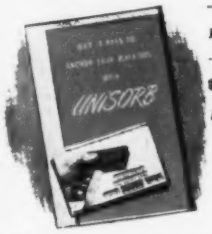
without BOLTS or LAG SCREWS

Deering, Milliken's modern, efficient Excelsior Mills at Clemson, S. C., are one of the nation's important makers of rayon tire cord.

In keeping with this manufacturer's alert, up-to-date methods, twisters, looms and other machinery are anchored in the *modern way* — on UNISORB . . . result: no bolts, no screws, *no damage to floors.*

UNISORB anchoring is quick, easy, inexpensive. A special cement binds the UNISORB to the machine feet and the floor — permanent set absolutely prevents any riding.

In addition to anchoring machines to the floor, UNISORB — correctly installed in accord with recommendations of Felters Engineers — will absorb from 60% to 85% of transmitted vibration and noise. By guarding against excessive vibration, UNISORB materially reduces shutdown hours, saves on machinery and building wear and repair. By providing quieter surroundings, it increases efficiency — helps toward greater production.



Send for sample and complete specifications. Ask for your copy of "Why it Pays to Anchor Your Machines with UNISORB."

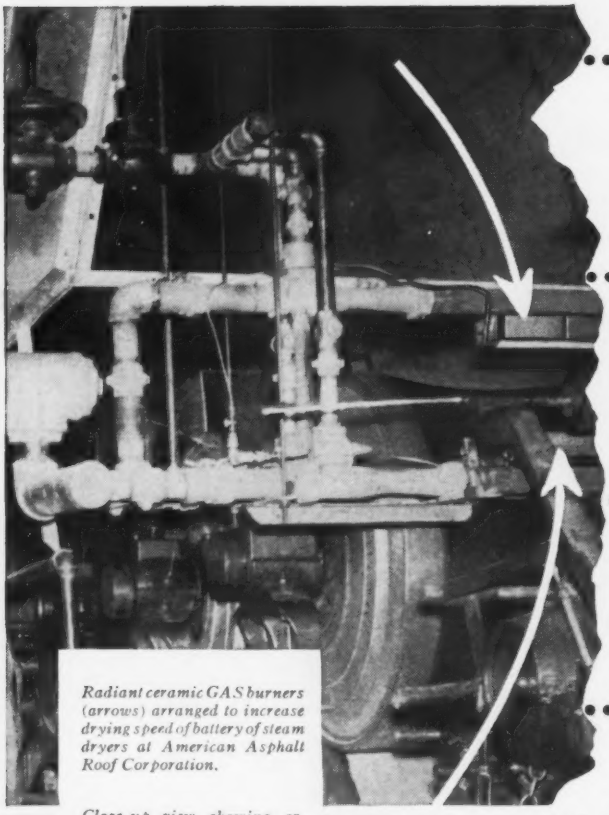
LOOK FOR THE RED CENTER AND UNISORB BRAND MARK

THE FELTERS COMPANY

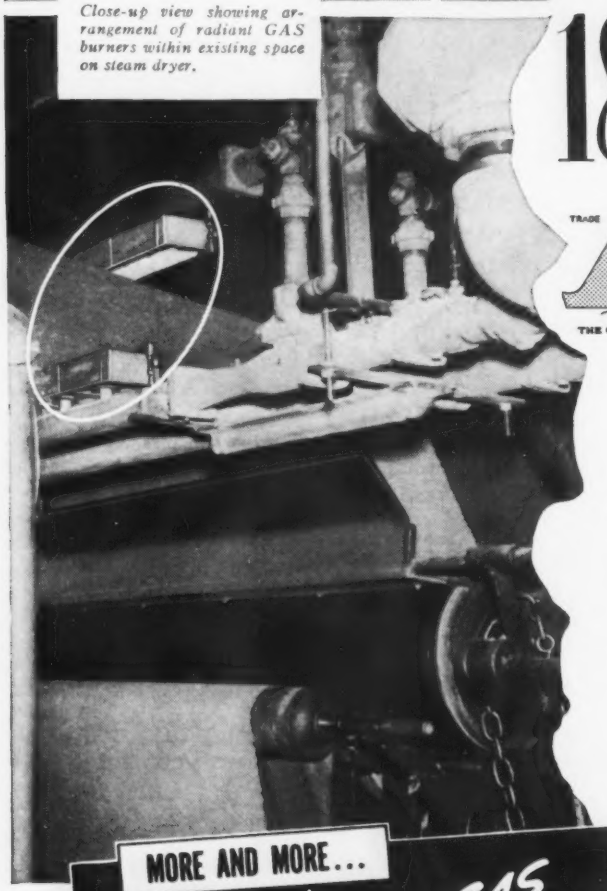
210-W SOUTH STREET, BOSTON 11, MASSACHUSETTS

Offices: New York, Philadelphia, Chicago, Detroit.
Sales Representatives: San Francisco, St. Louis.
Southern Representative: Industrial Supply Co., Clinton, S. C.
Southwest Representative: Textile Supply Co., Dallas, Texas
Mills: Johnson City, N. Y.; Millbury, Mass.; Jackson, Mich.

Foreign Representatives: ARGENTINA—PARAGUAY: Roberto Zander, 345-353 Juan Jaures, Buenos Aires; BRAZIL: Cia Industria E. Comercio, Glossop. Rua Visconde de Inhauma, 62, Caixa Postal, 265, Rio de Janeiro; Rua Florencio de Abreu 438/442, Caixa Postal, 1546, Sao Paulo; CHILE: W. L. Robinson, Casilla No. 4075, Santiago; COLOMBIA: C. E. Halaby & Co., Ltd., Airmail Box 650, Medellin; ECUADOR: Richard O. Custer, S. A., Guayaquil St. 937, P. O. Box 2753, Quito; URUGUAY: Roberto Zander, Montevideo Ltda., Calle Uruguay, 1711, Montevideo; VENEZUELA: Herbert Zander & Co., P. O. Box 1291, Caracas; MEXICO: Slobotzsky, S. A., Avenida Uruguay 55, Apartado 1192, Mexico, D. F.; EUROPE: Switzerland, Ernest Gersbach, Zurich; EASTERN MEDITERRANEAN AREA: The Arlind Corp., 509 Madison Avenue, New York 22, N. Y.



Radiant ceramic GAS burners (arrows) arranged to increase drying speed of battery of steam dryers at American Asphalt Roof Corporation.



Close-up view showing arrangement of radiant GAS burners within existing space on steam dryer.

PROCESS

Production-line Drying

MATERIAL

50-Gauge Roofing Felt

EQUIPMENT

Radiant *GAS* Burners

RESULT

18¾% Increased Drying Capacity

TRADE MARK
THE OLD AMERICAN

That 18.79% increase in drying capacity was accomplished with a minimum of capital investment—

- **Without increasing boiler capacity**
- **Without enlarging manufacturing buildings**
- **Without any change in existing steam dryers**

That 18.79% increase in drying capacity was accomplished by the simple expedient of installing GAS and modern radiant Gas-fired burners, in the production-line to supplement the drying action of a conventional steam cylinder dryer.

After an initial installation of radiant Gas-fired burners, drying capacity increased almost 10%. Officials of the American Asphalt Roof Corporation, manufacturers of OLD AMERICAN roofing products, needed no further proof of the advantages of GAS and modern Gas Equipment. Subsequent installations, utilizing flexible GAS and automatically controlled radiant Gas-fired burners, have been profitable investments.

Wherever you require heat in production or industrial processing you'll find GAS the ideal fuel—your local Gas Company will show you how you can use GAS.

MORE AND MORE...

THE TREND IS TO GAS

FOR ALL INDUSTRIAL HEATING

AMERICAN GAS ASSOCIATION

420 LEXINGTON AVENUE, NEW YORK 17, N. Y.

Ciba DYESTUFF GLIMPSES

The first steps in the manufacture of modern dyestuff are the intermediates, themselves the result of a long and intricate process. These components are blended together in huge vessels where chemical reactions which yield the dye take place.

At once, as if by magic, in the clear colorless liquid a brilliant dye appears as a fine colored precipitate.

This must be pumped into a filter press and forced through sieve after sieve which hold back the dyestuff and allow the liquid to flow through. When the presses are opened and the filter frames are pushed aside, we see the closely packed cakes of color in gleaming full shades.

There are also other ways of filtering. Sometimes the dyestuff is made to pass through enormous containers with a bottom of porous stone through which the liquid percolates leaving the dyestuff behind.

A strange, picturesque, romantic world, is this dye-making factory, with its mighty pressing machinery, huge containers and vats of shimmering colors. One might well forget, while gazing at this scene of large scale production, that here we have the visible fruit of subtle scientific thought.

DYESTUFFS • CHEMICALS • INTERMEDIATES

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Greenwich & Morton Sts.

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BOSTON · CHICAGO · MONTREAL · CHARLOTTE
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VAT DYES OF THE DOW CHEMICAL COMPANY

NEOLANS ON WOOL = SIMPLE PROCESSING . . .
EASY SHADING . . . LEVEL DYEING . . .

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●

ESTABLISHED 1840

To Worsted Spinners

here's the new, chemical way:

- To increase production
- To improve yarn quality
- To improve spinning efficiency
- To lower manufacturing costs

Monsanto's unique new spinning assistant, Syton W-20 offers you six important advantages:

1. Reduces twist without strength loss
2. Reduces ends down on the spinning frame
3. Produces loftier yarn
4. Cuts spinning time and cost
5. Produces more uniform yarn
6. Reduces aging time after oiling

What is Syton? How does it work?

Syton is a colloidal dispersion in water of sub-microscopic silica.

When distributed evenly throughout the stock, Syton increases inter-fiber friction and thereby reduces the tendency of the individual fibers to slide by one another.

The improved fiber "drag" increases strength and results in better and more uniform draft control of the wool fibers during both drawing and spinning.

Syton is simply added to the spinning emulsion. No special equipment, no heat, no after-process is required. Syton is compatible with dyes and oils. It can easily be washed out when necessary.

If you are interested in learning more about Syton W-20 . . . regarded as the first basic improvement in worsted spinning practice in 40 years . . . use the handy coupon below. MONSANTO CHEMICAL COMPANY, Textile Chemicals Department, 140 Federal Street, Boston 10, Mass. Syton: Reg. U. S. Pat. Off.

MONSANTO
CHEMICALS ... PLASTICS

SERVING INDUSTRY ... WHICH SERVES MANKIND

Monsanto Chemical Company
Textile Chemicals Dept.
140 Federal Street, Room 232, Boston 10, Mass.

Please send me ..... technical data, or ..... information about mill trial on Syton W-20 for Worsted Spinning:

Company.....

Name..... Title.....

Address.....

City..... State.....

You can't see it!

or smell it . . . or hear it . . .

but it stops fires

Dings Textile Magnet installed at large southern cotton mill.

It's magnetism. If you install the right magnet to take iron out of cotton, you stand to prevent 3 out of 4 fires occurring in opener-picker rooms.* But, with something you can't personally evaluate, such as magnetism, it pays to get facts before you buy. With magnets you can get very high surface strength or great depth of penetration or a good combination of both. The latter is what you want and what you get with Dings "High Intensity" Electromagnets. With this combination, the magnet will attract iron particles at considerable distance from the magnet face and hold them securely against the face. Let Dings tell you more about it.

Write for BULLETIN 99 and the name of the representative near you.

DINGS MAGNETIC SEPARATOR CO.
4700 W. McGeogh Avenue, Milwaukee, Wisconsin

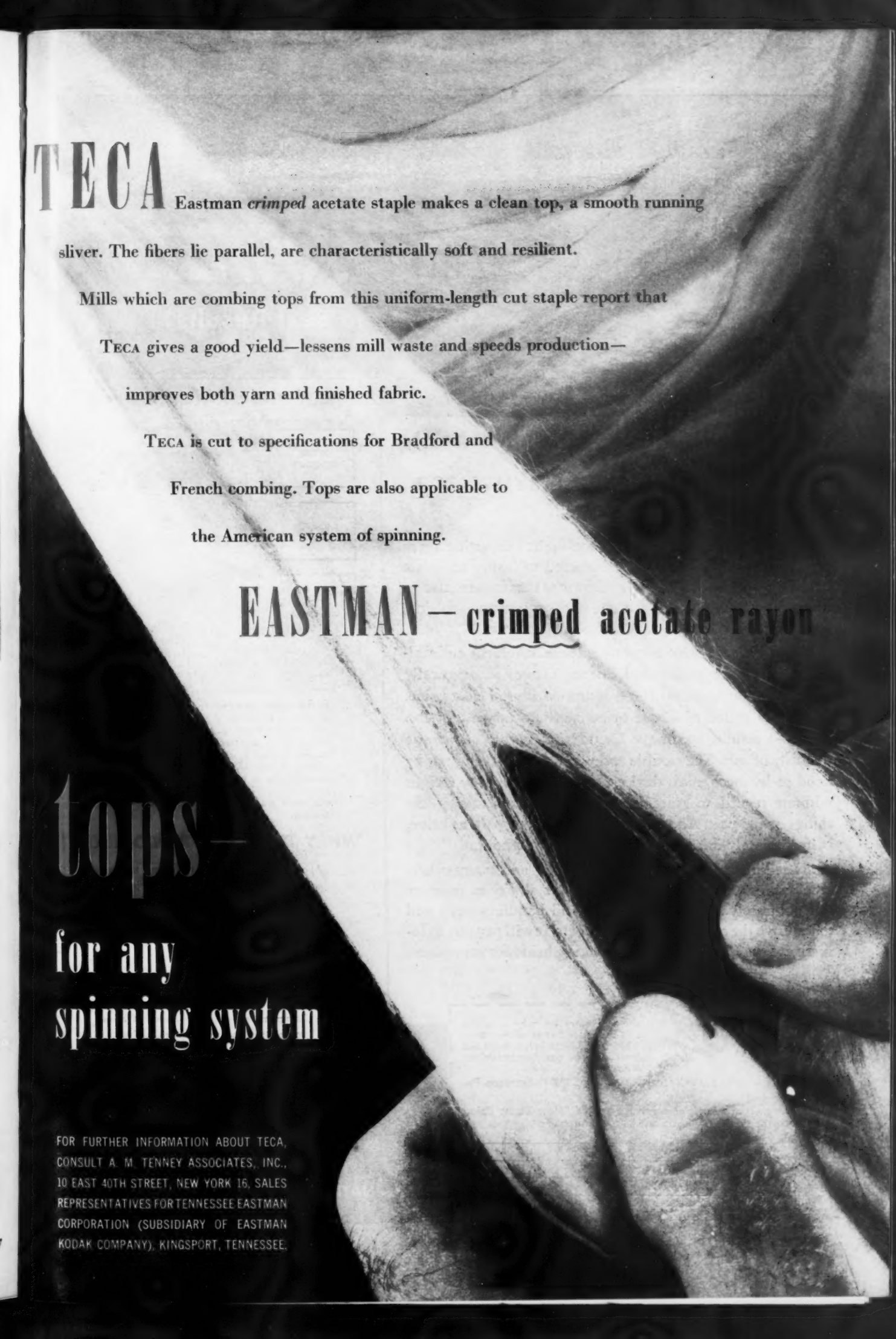
World's Largest Exclusive Builder of Magnetic Separators • Established 1899

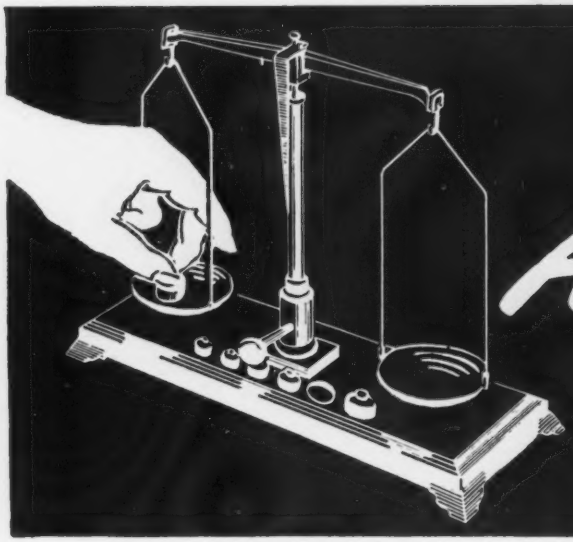
* Based on insurance records showing 76% of opener-picker fires caused by "foreign substances." Some Dings users report no fires since installation.

Dings

"HIGH INTENSITY"

Ask for list of leading mills using Dings Magnets


TECA Eastman *crimped* acetate staple makes a clean top, a smooth running sliver. The fibers lie parallel, are characteristically soft and resilient.
Mills which are combing tops from this uniform-length cut staple report that TECA gives a good yield—lessens mill waste and speeds production—improves both yarn and finished fabric.
TECA is cut to specifications for Bradford and French combing. Tops are also applicable to the American system of spinning.
EASTMAN—crimped acetate rayon
tops—
for any spinning system
FOR FURTHER INFORMATION ABOUT TECA, CONSULT A. M. TENNEY ASSOCIATES, INC., 10 EAST 40TH STREET, NEW YORK 16, SALES REPRESENTATIVES FOR TENNESSEE EASTMAN CORPORATION (SUBSIDIARY OF EASTMAN KODAK COMPANY), KINGSPORT, TENNESSEE.



You've Got to Measure

ACCURATELY

to Get the Best Results!

For Accurate Salt Measurement

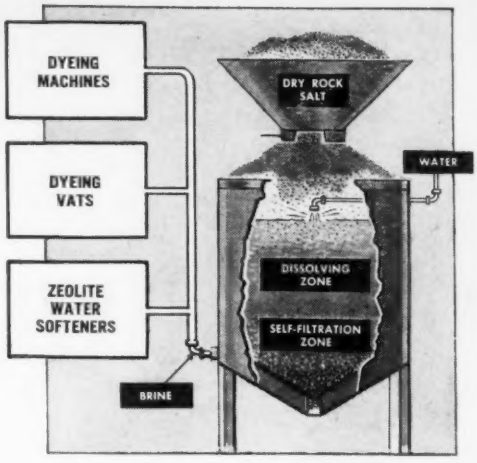
"PASS the SALT" BY LIXATOR

EVERY DYER knows that salt is a top-flight exhausting agent ... that it must be accurately measured to insure complete exhausting without waste ... and further that it must also be uniformly distributed in the dye bath to prevent spotting, streaking and white edges. The question is *how*.

With Lixate brine accurate salt measurement and uniform distribution are assured. For the Lixator automatically and continuously makes 100% saturated, crystal clear brine. Since each gallon of Lixate brine *always* contains 2.65 lbs. of salt—a definite volume of Lixate brine supplies a definite quantity of salt. The trouble and waste of measuring salt by hand or by mechanical devices, or of measuring by weight without regard to water absorption during storage, are things of the past. And added to the dye bath, salt, as brine, is immediately diluted and dispersed throughout.

Leading companies in your industry and many others are availing themselves of the Lixator's ability to measure salt accurately ... to reduce labor and handling costs and to improve the quality of their products. It will pay you to investigate the Lixate Process for making brine for your plant.

HOW THE LIXATOR WORKS



In the upper zone—Flowing through a bed of rock salt which is continuously replenished by gravity feed, water dissolves salt to form 100% saturated brine. **In the lower zone**—Through use of the self-filtration principle *originated by International*, the saturated brine is thoroughly filtered through a bed of undissolved rock salt. The rock salt itself filters the brine. Nothing else is needed.

WHAT THE LIXATOR PROVIDES

- ✓ **Chemical and bacterial purity to meet the most exacting standards for brine**
- ✓ **Unvarying salt content of 2.65 pounds per gallon of brine**
- ✓ **Crystal-clear brine**
- ✓ **Continuous supply of brine**
- ✓ **Automatic salt and water feed to Lixator**
- ✓ **Inexpensive, rapid distribution of brine to points of use by pump and piping**

Get the full story on why accurate salt measurement is *always* possible with Lixate brine. Send for your copy of our *free* pamphlet *today!*

INTERNATIONAL SALT COMPANY, INC., Dept. TW-12, Scranton, Pa.

Gentlemen:
Please mail absolutely free your pamphlet, "How Lixate Brine Solves the Problem of Accurate Salt Measurement."

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Firm _____

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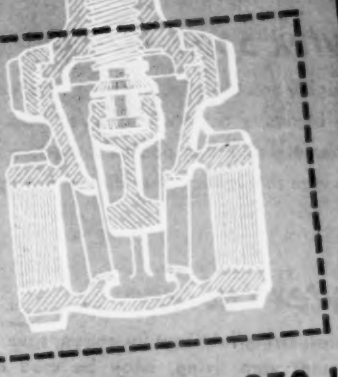
City _____ *State* _____

The LIXATE Process
Reg. U. S. Pat. Off.
for making brine
INTERNATIONAL SALT COMPANY, INC.
Scranton, Pa.

JENKINS GIVES YOU

Super Toughness in the "TROUBLE ZONE"



in the NEW FIG. 270-U
200 lb. BRONZE GATE

MONEL SEAT RINGS — *2½ TIMES AS HARD AS VALVE BODY BRONZE — PLUS AN EASILY REPLACEABLE BRONZE WEDGE. TRY AND BEAT THAT COMBINATION FOR LONG LIFE, LOW MAINTENANCE!*

Plus....

IN the NEW Fig. 270-U Bronze Gate Valve, Jenkins engineers give you a practical design to checkmate trouble in the "trouble zone" — and cut maintenance to a new low.

Wear affects only the most accessible part — the bronze wedge — which can be replaced simply by slipping it off the stem and slipping on a new one. The seat rings, expanded in the body, are super-tough MONEL, for lifetime durability. Convincing tests, in toughest service, prove it the best seating combination to beat wear, reduce care.

Get complete details of this NEW Jenkins Fig. 270-U. See why it's your best buy in a 200 lb. Bronze Gate, especially for unusually severe conditions, such as in oil refineries, chemical, food, and rubber plants.

LARGE SPINDLE THREADS—Plenty of large diameter, sturdy threads reduce wear to a minimum, insure easy operation.

EXCEPTIONALLY RUGGED BODY, BONNET, AND BONNET RING — Withstand rough usage, shocks and hydraulic pressure far beyond rating.

DEEP STUFFING BOX — MORE PACKING—Keeps packing tight around spindle with less friction, permits spindle to be turned with less effort.

NEW FOLDER — Describes many other exclusive features that mean extra years of low-cost performance.

WRITE FOR THIS FOLDER. It describes the Fig. 270-U and many other popular Jenkins Bronze Gate Valves. Or, ask your Jenkins Distributor.

MAIL THE COUPON TODAY

LOOK FOR THIS JENKINS DIAMOND MARK

SINCE 1864

JENKINS VALVES

Types, Sizes, Pressures, Metals for Every Need

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80 White St., New York 13, N. Y.
Send Bronze Gate Valve Folder.
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CHEMICAL DEVELOPMENTS

FINISHES
DETERGENTS
SOFTENERS
SIZE

THAT IMPROVE FABRIC LIFE, APPEARANCE & VALUE

Brytex PRODUCTS

Printing & Finishing

Brytex No. 745 Gum

is a printing thickener for vat colors that will produce the optimum color value at low cost. It is a smooth, free-flowing paste, suitable for the printing of small objects and large blotches as well.

Brytex Waxemul

produces a soft, smooth finish; is applicable to any and all fabrics. A very workable and economical softening agent. May be combined with starches, gums and similar finishing materials.

Brytex Conditionol W

static inhibitor for wool and blends with synthetic fibres. Efficiently eliminates static with no extra operations or equipment.

Brytexol N-7

a penetrating oil for dyeing. Also for sanforizing where maximum rewetting properties together with absence of gumming tendencies and complete resistance to discoloration and oxidation are required.

Warp Sizes

Brytex Spun Size O

a highly soluble gum for sizing spun yarns including blends of acetate and rayon fibre. Maintains a penetrated strong pliable protective coating for the yarn that reduces shedding and warp breaks.

Brytex Lubrene

a plasticizing lubricant for cotton, spun rayon and filament yarn sizing. May be used along with starch, gelatine and similar sizing materials. A concentrated material that will show greatest economy. A highly soluble oil that has proved very workable in the slashing room.

Brytex Hygel

a high gel strength size for filament yarns. A concentrated dry size, non-foaming. Dissolves quickly and completely. Absence of impurities or adulterants facilitates size removal and finishing.

Brytex Sizing Binder

an adhesive and penetrating dry gum for cotton warp sizing. Increases size penetration, reduces shedding. Fully concentrated. Easy to weigh or measure, economical.

FULL INFORMATION ON OTHER *Brytex* PRODUCTS AVAILABLE IN BOOKLET "M"

BRYANT CHEMICAL CORPORATION

NORTH QUINCY 71, MASSACHUSETTS

How Reliance V★S can help *you* meet the greatest challenge industry has ever faced

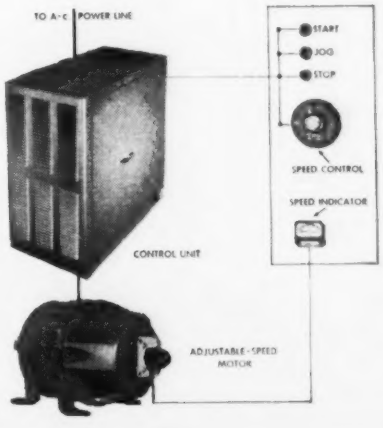
WAGES go up and up, along with materials and other manufacturing costs. But to keep America prosperous, prices cannot be permitted to spiral to the point where large numbers of consumers are forced out of the market. How to prevent this presents the greatest challenge industry has ever faced.

One sound answer is increased production through the use of more efficient machinery and methods. And this is where Reliance V★S can help you. *We have yet to find the industry where the V★S Drive cannot improve the quantity and quality of output, while lowering costs.*

A Reliance Application Engineer will survey your operations, then show you where and how you can benefit most through use of V★S—*the All-electric, Adjustable-speed Drive, operating from A-c. Circuits.* Just phone the nearest Reliance representative or write us direct for Bulletin 311.

RELIANCE ELECTRIC & ENGINEERING CO.
1086 IVANHOE ROAD • CLEVELAND 10, OHIO
Sales Representatives in Principal Cities

Available in the Electronic System (1 to 5 hp.), in the Rotating System (1 to 200 hp.), or in a combination of both systems.



Reliance V★S Drive provides unlimited flexibility of machine operation. Starting, stopping, speed changing, reversing, maintenance of proper tension and other functions are exercised automatically or manually from nearby or remote stations.

RELIANCE A-C D-C MOTORS

"MOTOR-DRIVE IS MORE THAN POWER"

UNION PACIFIC

TREASURE MAP OF INDUSTRY

Nevada

- *Variety of metals, minerals and ores of value to industry*
- *Power and irrigation projects*
- *Good living conditions*
- *Colorful scenic attractions*
- *Excellent rail transportation*

* *One of a series of advertisements based on industrial opportunities in the states served by the Union Pacific Railroad.*

Manufacturers, packers and processors will find Nevada a storehouse of raw materials. There are deposits of copper, silver, gold, zinc, lead and uranium. Mineral ores and minerals include tungsten, manganese and antimony ore, magnesite, gypsum, sulphur, borax and vanadium. Building stone and marble also are available.

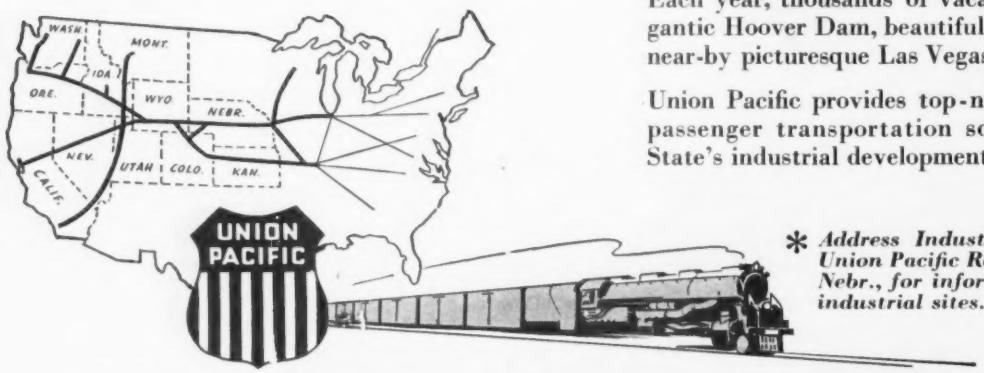
Cattle, sheep and poultry raising are expanding agricultural pursuits and there also is some production of a variety of grains, vegetables and fruits.

Irrigation and power are supplied by several Federal projects including famous Hoover Dam.

Nevada's healthful climate, excellent educational system, and a variety of scenic attractions contribute to the advantages of living in this western area.

Each year, thousands of vacationists visit gigantic Hoover Dam, beautiful Lake Mead and near-by picturesque Las Vegas.

Union Pacific provides top-notch freight and passenger transportation so essential to a State's industrial development.



* *Address Industrial Department, Union Pacific Railroad, Omaha 2, Nebr., for information regarding industrial sites.*

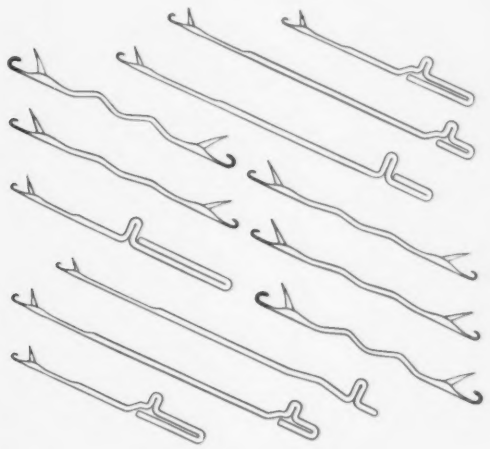
UNION PACIFIC RAILROAD

THE STRATEGIC MIDDLE ROUTE

know your NEEDLES for CHILDREN'S GOODS

IF YOU manufacture children's goods, then Torrington makes needles like those shown below, for *you*. But *whatever* your knitted merchandise, Torrington's line of more than 10,000 different styles contains just the right needles for your machines.

Torrington Needles are consistently top-quality ...machine-made, machine-controlled and machine-tested from raw material to finished product. You can *always* count on TORRINGTONS—the needles in the red and green box.

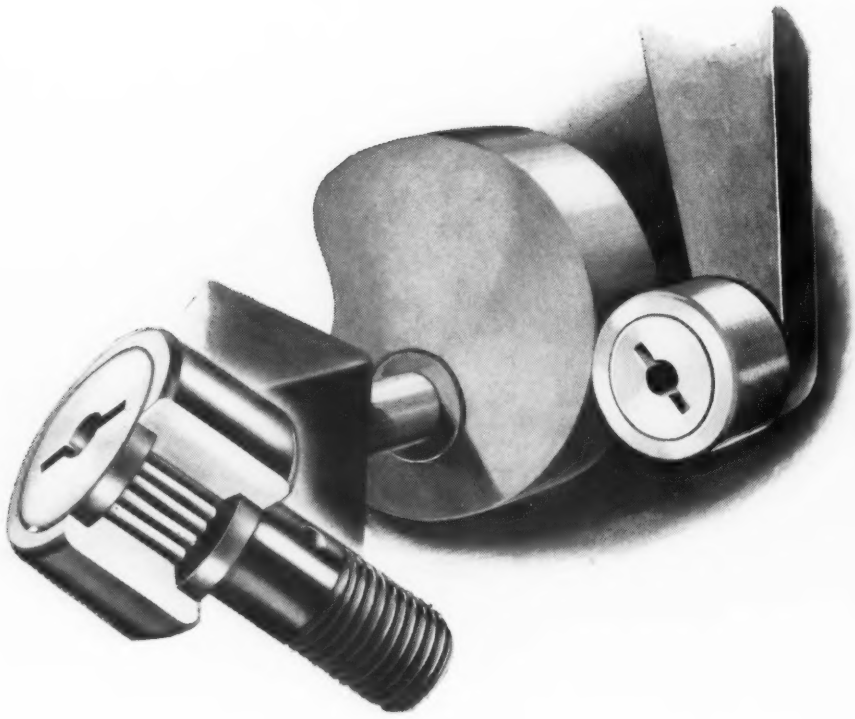


THE TORRINGTON COMPANY

Torrington, Conn., U. S. A. • Established 1866

Branches: New York • Philadelphia • Chicago • Greensboro, N. C. Boston • St. Louis • Toronto, Canada • *Pacific Coast Representative:* E. G. Paules, 1762 West Vernon Avenue, Los Angeles 37, Calif.

There's a **TORRINGTON** LATCH NEEDLE for every type of Knitting!



For dependable "follow-through"...

in cam follower applications, wear must be kept to a minimum . . . a problem which grows with increasing loads and speeds. The anti-friction efficiency of

Torrington Cam Follower Needle Bearings...

helps to assure continued accuracy of operation of many types of machines. They have a high radial capacity provided by a full complement of small diameter rollers—backed up by sturdy outer races. They are compact in design, occupy little space, retain and distribute lubricant effectively to all surfaces.

Torrington Cam Follower Needle Bearings are made in a wide range of sizes, one of which may be the solution to your cam roller problem.

THE TORRINGTON COMPANY

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Offices in All Principal Cities

TORRINGTON BEARINGS

• NEEDLE • SPHERICAL ROLLER • STRAIGHT ROLLER • TAPERED ROLLER • BALL •

SPOILAGE CUT 50%— PRODUCTION UP 10% *DUE TO IONOTRONS!*

An example of how textile static problems are being solved with the Ionotron Static Eliminator®

Arrow shows location of Ionotron Static Eliminator on Peralta of wool card at Broadalbin Knitting Company. The Ionotron has entirely eliminated wool web static troubles.

At the Broadalbin Knitting Company, Broadalbin, N. Y., static electricity used to cause frequent breakage of wool web — with resultant spoilage, machine stoppages, and excess operating time. In February, 1947, Broadalbin installed Ionotron Static Eliminators on two wool cards where the web is fed from breaker to finisher.

R. H. Cleveland, Superintendent, reports these results: approximately *50% less spoilage; 10% more production; 10% reduction in operating time; better quality work.* Static-caused stoppages of the machines have been eliminated entirely. Needless to say, Broadalbin is planning to install Ionotrons on other machines.

How it works — The Ionotron contains a self-active source of continuous alpha radiation. This ionizes the air in the static trouble zone. The ionized air conducts the static harmlessly to ground. The reduction of static eliminates bunching, lapping, and other static-caused difficulties with textile fibres and fabrics. Production and product quality go up. Working conditions are more comfortable, because high humidity is no longer required to combat static.

Outstanding features — Action of the Ionotron is *continuous and permanent.* Yet there are *no moving parts, no power requirement, and no operating cost!* Units of suitable size are easy to install on almost any equipment.

For details about employing Ionotron Static Eliminators on wool and worsted machines, write Davis & Furber Machine Co., North Andover, Mass. For information about any other textile application of the Ionotron, send a detailed description of the static problem to *Dept. L3, United States Radium Corporation, 535 Pearl Street, New York 7, N. Y.*

USRADIUM

IONOTRON *Static* **ELIMINATOR**

1948
A year of promise
WITH the arrival of another Holiday Season, we find ourselves looking forward to 1948 as—A Year of Promise. This good feeling comes from the knowledge that the steel industry is already engaged in the greatest expansion program in its history.
The benefits of increased supply from added producing facilities will naturally be gradual, but we go into 1948 fully expecting to do a better job of taking care of your steel requirements.
We have already improved our facilities for service by erecting new modern warehouses in Cleveland and St. Louis. We have also opened a new warehouse in Los Angeles which will go a long way toward supplying the needs of steel users on the West Coast. And we expect to make other improvements and additions to our service facilities during 1948, so that our name will continue to be a "Symbol of Service" to steel users.
Meanwhile, we extend to you our cordial best wishes for a happy Holiday Season and a successful, prosperous New Year.
UNITED STATES STEEL SUPPLY COMPANY
BALTIMORE · BOSTON · CHICAGO · CLEVELAND
LOS ANGELES · MILWAUKEE · NEWARK
PITTSBURGH · ST. LOUIS · TWIN CITY (St. Paul)
UNITED STATES STEEL SUPPLY COMPANY
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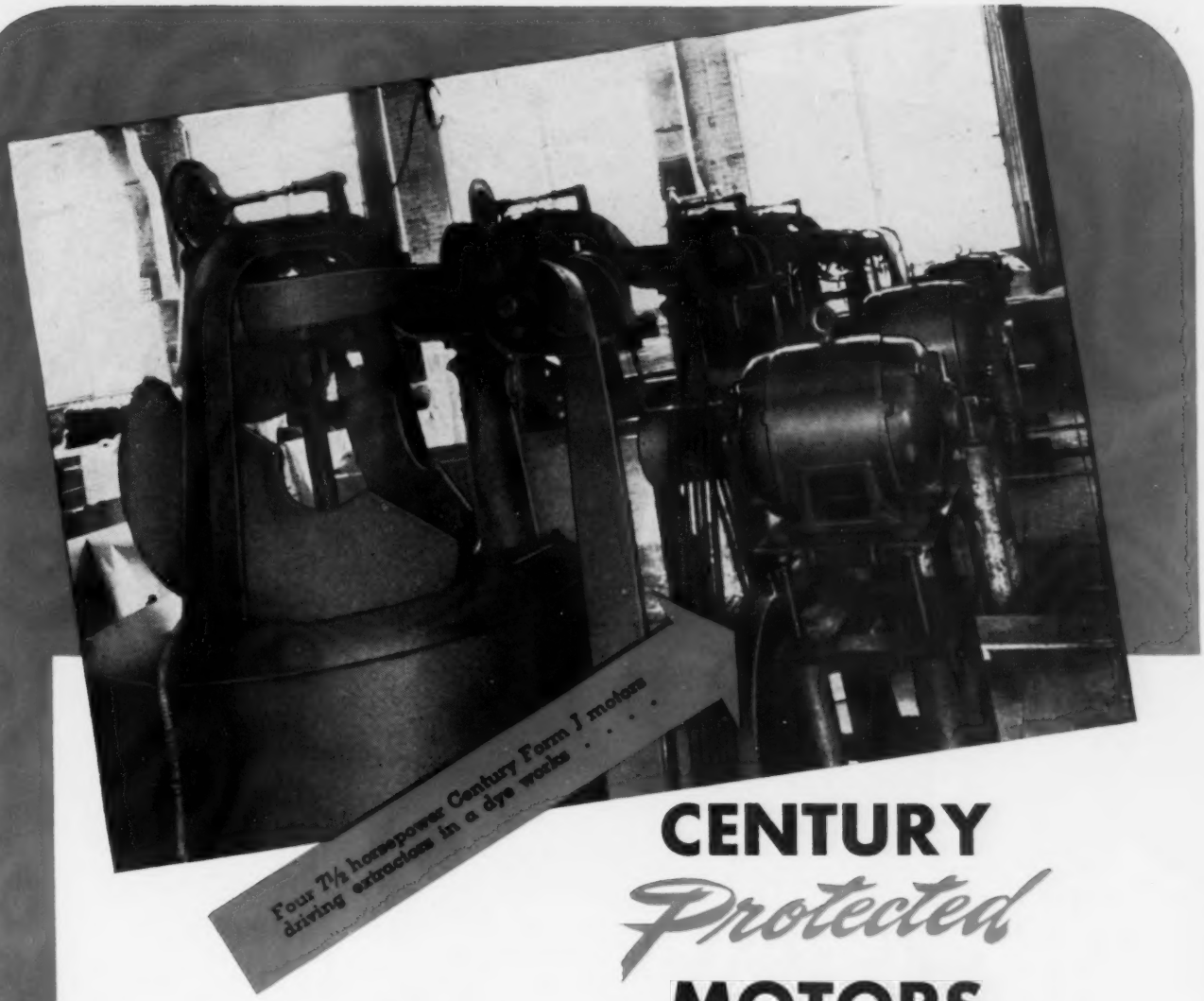
STEELS
SERVICE
UNITED STATES STEEL



Four 7½ horsepower Century Form J motors driving extractors in a dye works . . . .

CENTURY *Protected* MOTORS

INSULATED TO RESIST MOIST SURROUNDINGS • • THEY ASSURE LONG LIFE ON EXTRACTORS — WASHERS — DYERS — PUMPS • •

The vital operating parts of Century protected Form J drip proof open rated motors are protected from falling objects and dripping liquids because the upper half of the motor frame is closed. Nothing can fall inside the motor frame.

To give insulation and windings protection against damp atmospheres, Century motor windings are thoroughly saturated with a compound that is highly moisture resistant, then baked until dry and hard.

Century builds a complete line of electric motors and generators, fractional and integral horsepower, in the popular sizes to meet the requirements of industrial production, processing, commercial and home needs.

Specify Century for all your electric power requirements.

CE-517

CENTURY ELECTRIC COMPANY

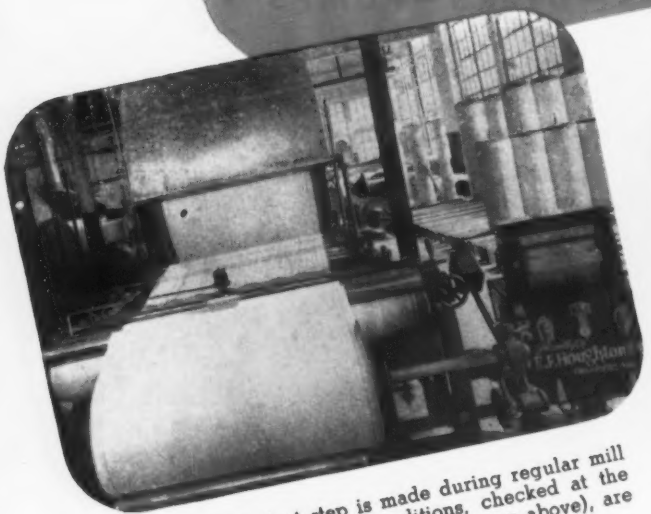
1806 Pine St., St. Louis 3, Mo.

Offices and Stock Points in Principal Cities

Houghton Presents

9 STEPS THAT LEAD TO STEPPED-UP WARP SIZE EFFICIENCY

A PICTURE STORY OF THE SIMPLE, LOGICAL SEQUENCE OF THE HOUGHTON WARP SIZE CHECK-UP TEST



1 The test's first step is made during regular mill operation. Moisture conditions, checked at the slasher by the Moist-o-graph (shown above), are controlled to increase sizing efficiency.

2 Many sizing formulae may be used in the test. Unsized and variously sized warp samples are removed from the slasher by our Size Specialist, without interfering with mill production.

3 The samples, packed in air-tight jars, are sent to Houghton's completely equipped textile laboratory in Philadelphia, along with all pertinent data from the mill.

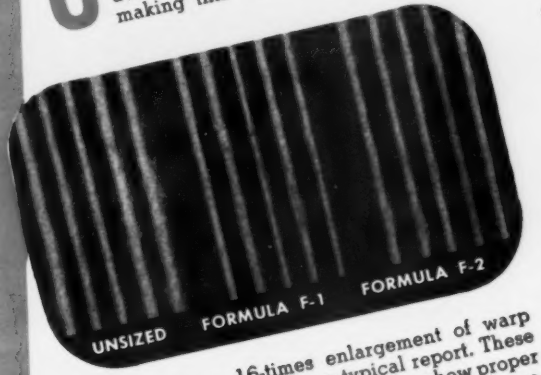
4 Moisture content is determined as the sample is received so mill conditions may be checked. Warp is then dried, weighed, and subjected to chemical and physical analysis.

5 All sizing, natural waxes and gums originally in the cotton are boiled off. Dried and reweighed, the boil-off and amount of size added are determined.

6 This Scott Inclined Plane Tester finds and records single-end elongation and breaking strength. An average of 15 tests is used in making this determination.

7 Microphotographs, 8 to 16 times the original size, present visual evidence of how sizing affects yarn. Threads are stretched on a special frame for photographing.

8 The final report compares various sizing formulae and their influence on weavability. Warp strength, elongation, amount of size added and moisture conditions are set forth.



9 This is a 16-times enlargement of warp threads, taken from a typical report. These microphotographs clearly show how proper sizing improves fiber lay and smoothness.

The Houghton Warp Size Check-Up Test is completely confidential and available only to the mill requesting it. The test consists of a study of actual mill conditions, a sizing demonstration using the mill's regular equipment and comparative analysis of various warp size formulae. May we talk it over with you?

HOUGHTO-SIZE CW

Regardless of conditions and equipment, efficient sizing can not be obtained without a reliable, concentrated size softener. HOUGHTO-SIZE CW, a one piece sizing agent combining softener, binder and plasticizer, has proven its merits in production as an economical compound offering improved weaving results at low kettle cost.

E. F. HOUGHTON & CO.

303 W. LEHIGH AVE., PHILADELPHIA 33, PA.
1301-05 W. MOREHEAD ST., CHARLOTTE 1, N. C.

Go "National" for Lead LININGS

What kind of Sheet Lead Lining do you need to fight acid corrosion?

1 Our Regular CHEMICAL LEAD? This is a practically pure lead, substantially free from bismuth and containing a small amount of copper which boosts corrosion resistance and endurance limit. Used long and successfully throughout industry for lining tanks and for covering apparatus exposed to corrosive fumes or acid splash, it is the base lead for acid handling. The other types, like Tellurium Lead or Antimonial Lead, are simply Chemical Lead alloyed with varying quantities of tellurium or antimony to impart extra qualities.

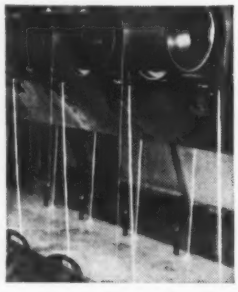
***Lead sheet** is easily formed into any shape and burned to give you one-piece, corrosion-resisting tank linings.*

2 Our Special TELLURIUM LEAD? This is Chemical Lead containing a small amount of tellurium. You get all of lead's regular advantages plus certain new ones to meet special service conditions.

One outstanding feature of Tellurium Lead is its increased corrosion resistance at high temperatures.

Another is its ability to work-harden. Mechanical stress, such as bending, stretching or hammering, actually *increases* Tellurium Lead's tensile strength and resistance to fracture.

Tellurium Lead is especially recommended where you have to combat *both* stress and corrosion.



***Tellurium Lead** stands up under vibration or fatigue stresses. That's why it was used here as a protective covering on rayon spinning machines.*

3 Our Extra-Strong ANTIMONIAL LEAD? This is made from either Chemical or Tellurium Lead by adding small amounts of antimony to secure greater tensile and mechanical strength. For example, lead containing 6% antimony has a tensile strength almost twice that of Chemical Lead. This, plus its stiffness, makes it suitable for use where mechanical strain is severe or where linings are supported only by a skeleton framework.

Antimonial Lead also is harder and more resistant to abrasion and cutting. It's a good bet wherever erosion or mechanical abuse exists. However, because antimony lowers the melting point, Antimonial Lead is not recommended for use above 240°F.

*6% **Antimonial Lead** was used to line these precipitating tanks because it has the extra strength needed to withstand the vacuum used in the operation.*

No Matter What Your Acid-Handling Problem...

Go "National" for Lead

National Lead is ready to consult with you and supply any type of lead pipe . . . valves . . . sheet . . . lead-lined or lead-covered equipment . . . even complete acid recovery plants. And behind every National Lead product, every National Lead recommendation, are years of experience and many important installations in every field handling corrosive liquids and gases.

NATIONAL LEAD COMPANY
111 BROADWAY, NEW YORK 6, N. Y.
Offices and Plants in Principal Cities and Canada

The **HIGHER** *you stack*
the **LOWER** *your cost!*

MOBILIFT

"Tiers to the Top"

Those upper levels of your storage space—are you taking full advantage of them? MOBILIFT's high lift elevator is designed to spot loads on the third or fourth tier as easily as at floor level—an advantage that cuts your costs in many ways.

- **Makes overhead space productive.**
- **Eliminates back-breaking muscle methods.**
- **Lifts materials too heavy for hand stacking.**
- **Clears floor space for extra production.**
- **It's safer — it's faster — it's less expensive.**

High stacking is only one of the many ways MOBILIFT can cut your storage and materials handling costs. Let one of our representatives show you how you can save with a MOBILIFT operation.

SALES OFFICES

58-15 35th Ave., Long Island City, N.Y.
2430 South Parkway, Chicago 16, Illinois
1113 Spring Street N.W., Atlanta, Georgia
725 Second St., San Francisco 7, California

TW

MOBILIFT CORPORATION
835 S.E. Main St. PORTLAND 14, ORE.

Please send me your illustrated folder on Mobilift operation.

Name_____

Company_____

Street_____

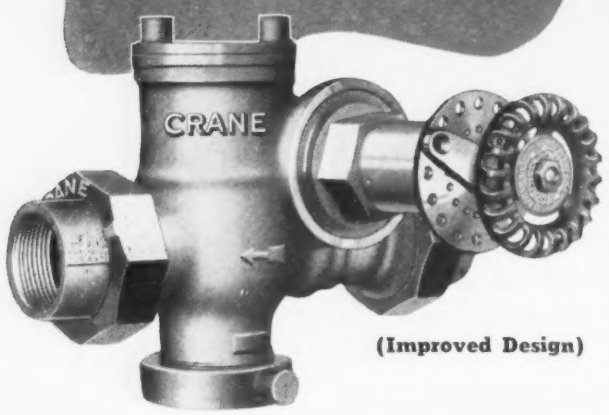
City_____ State_____

MOBILIFT

MOVES MATERIALS LIKE A GIANT!

MOBILIFT CORPORATION, 835 S.E. MAIN STREET, PORTLAND 14, OREGON

AVAILABLE FOR IMMEDIATE DELIVERY . . .



(Improved Design)

NO. 960 BRASS PRESSURE REGULATOR

1. For initial steam or air pressures up to 250 lbs., reduced to within 80%. Sizes up to 2 in.
2. Can't wear out; every working part is renewable. Piston operates in removable cylinder liner.
3. Can be furnished for any of four service pressure ranges: 1 to 10, 5 to 30, 20 to 100, 90 to 200 pounds. Setting within each pressure range is by simple hand-wheel adjustment. Operation is completely automatic.
4. Maintains uniform reduced pressure at all times. Pressure cannot build up.
5. Simplified design: has minimum working parts. Fully accessible for inspection. Easy to service.

How to Choose the Right Size

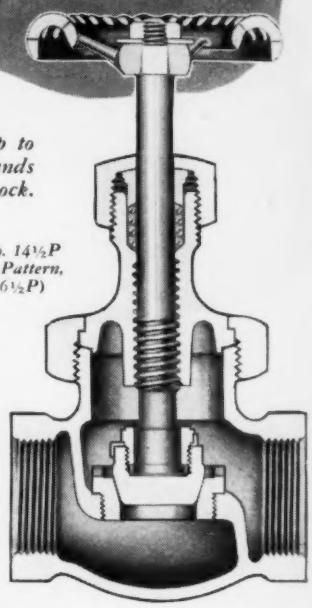
For best results, having the right size pressure regulator for your needs is all-important. Get this folder with its handy size selector, and other data to help you order. Or, see your Crane catalog, p. 410-411.

WRITE FOR DESCRIPTIVE FOLDER AD-1597

BEST FOR TOUGH SERVICES!

Working Pressures: *Up to 150 pounds steam; 300 pounds cold water, oil, or gas, non-shock.*

Cat. No. 14½P (Angle Pattern, No. 16½P)



150-POUND PLUG TYPE DISC BRASS GLOBE AND ANGLE VALVES

WHERE TO USE THEM

Recommended for all spots where flow is throttled, and where operating conditions are severe. Ideal for soot blower, blow-off, boiler feed, drip and drain lines.

WHY THEY GIVE BETTER SERVICE

They are designed throughout for tough work. Plug type disc and seat provide extra-wide bearing surfaces for maximum resistance to wire-drawing and damage by foreign matter. Taper of disc permits easy regulation of flow.

Seating materials (Crane Nickel Alloy to Exelloy) are harder, tougher, and stronger than metals ordinarily used in brass valves. They have higher resistance to wear, temperature, galling, and scoring. See your Crane catalog, p. 31 or

WRITE FOR DESCRIPTIVE CIRCULAR AD-1668

CRANE CO., *General Offices,* 836 South Michigan Avenue, Chicago 5, Illinois
Branches and Wholesalers Serving All Industrial Areas

EVERYTHING FROM . . .

VALVES
FITTINGS
PIPE

CRANE

PLUMBING
AND
HEATING

FOR EVERY PIPING SYSTEM

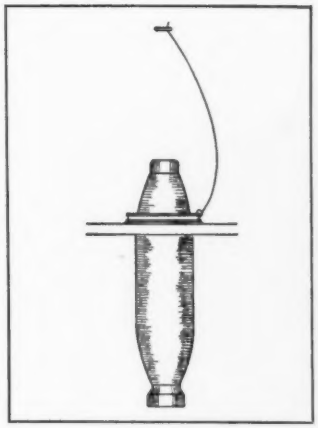
INDANTHRENE
UNSURPASSED
IN FASTNESS
TO SUNLIGHT
AND WASHING

GENERAL DYESTUFF CORPORATION

ABBOTT MACHINE COMPANY

WILTON, N. H.

WE RECOMMEND:



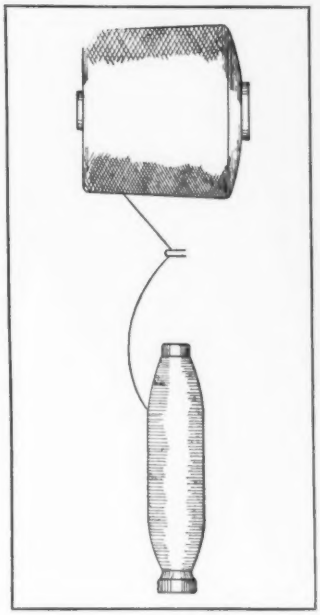
SPIN ALL YARNS ON LARGE WARP BOBBINS UP TO 8 OZ. DEPENDING ON COUNT

SAVE DOFFING AND INCREASE SPINDLE EFFICIENCY

WIND AND SLUB TO LARGE 4° CONES AT 600 TO 750 YARDS PER MINUTE

900 TO 1000 NET BOBBINS PER HOUR PER OPERATOR

USING:-
ABBOTT TRAVELING SPINDLE
AUTOMATIC CONE WINDER



FROM THESE CONES:-

WARP AT HIGH SPEED
FROM A MAGAZINE
CONE CREEL

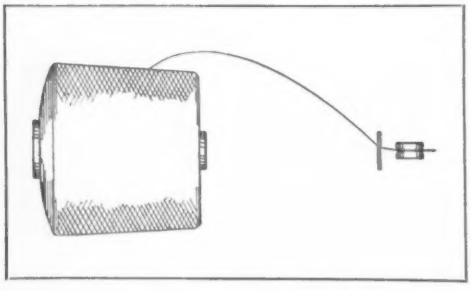
OR

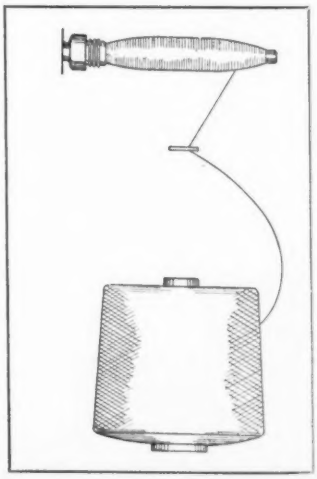
WIND LOOM QUILLS

USING:-

ABBOTT
AUTOMATIC
QUILLER

1000 TO 2000
BOBBINS PER
HOUR PER
OPERATOR





Southern Office, Greenville, S. C.

REPUBLIC *Enduro* STAINLESS STEEL

Resists Rust and Corrosion

Free from the damaging effects of rust and corrosion, textile equipment made with Republic ENDURO Stainless Steel guards fabrics, and cuts maintenance and replacement costs.

Lustrous ENDURO stages a double-barreled offensive against rust due to repeated flushings and washings . . . against corrosion caused by constant contact with dyeing solutions and high temperature steam. And, it needs no protective coating to beat those twin enemies of equipment efficiency. ENDURO is solid stainless steel all the way through—never requires painting or refinishing—lasts indefinitely.

Spinning from a solution in which the dye is an integral part, these stainless steel cylinders help produce a cuprammonium yarn of unusually high elasticity and tenacity. Long-lasting ENDURO Stainless Steel is equally useful in countless other textile applications including bleaching and carbonizing equipment, dry cans, dye reels, evaporator tubes, fulling machines, kiers, laboratory equipment, sizing machines and table tops.

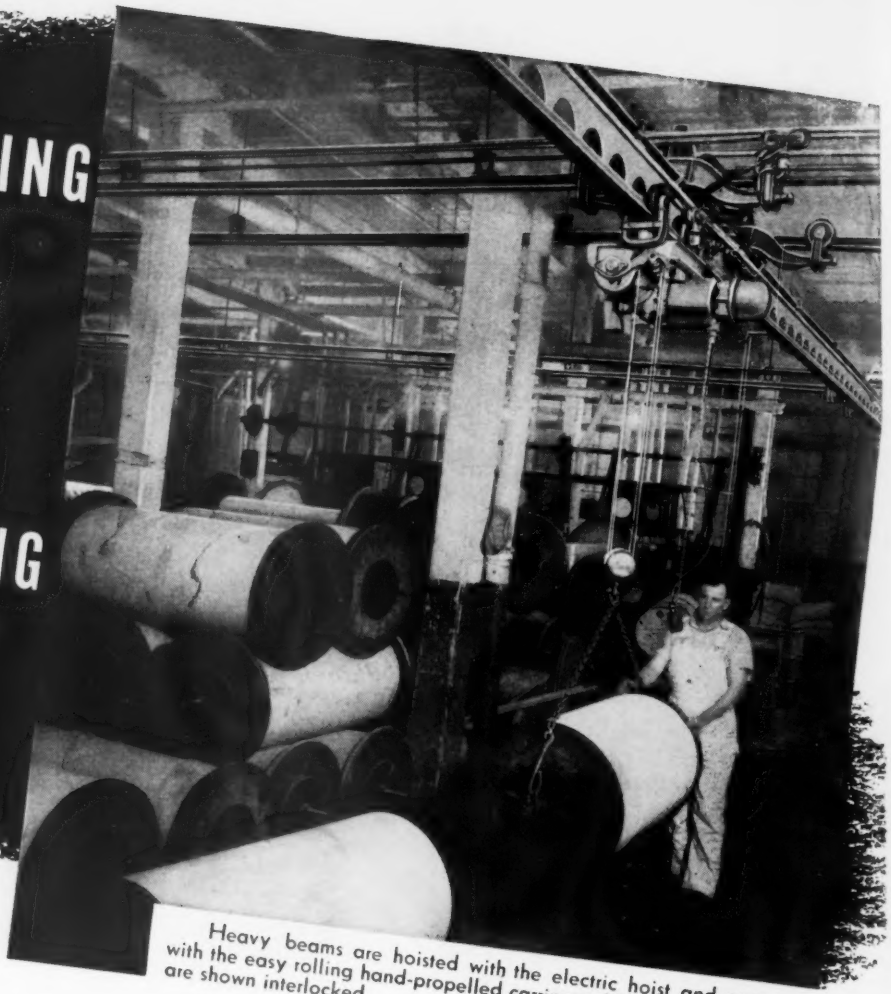
Easy to clean and keep clean . . . inert to dyeing solutions . . . noncontaminating . . . resistant to most acids and alkalies as well as to rust and corrosion . . . Republic ENDURO Stainless Steel is the ideal material for all textile equipment. For more information about ENDURO's many product-improving, cost-cutting applications in your industry, write for your free copy of Republic's colorful booklet No. 444.

REPUBLIC STEEL CORPORATION
Alloy Steel Division • Massillon, Ohio
GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York 17, New York

Republic
REPUBLIC STEEL
REG. U. S. PAT. OFF.
ENDURO STAINLESS STEEL
Reg. U. S. Pat. Off.

Other Republic Products include Carbon and Alloy Steels—Pipe, Sheets, Strip, Plates, Bars, Wire, Pig Iron, Bolts and Nuts, Tubing

INTERLOCKING BRIDGES *Speed* BEAM HANDLING



Heavy beams are hoisted with the electric hoist and conveyed with the easy rolling hand-propelled carrier and bridges. Two bridges are shown interlocked.

SIMPLE, inexpensive, hand-propelled transfer bridges, as illustrated, provide hoisting and conveying service for the entire floor area of the slasher room bays in which they operate. Interlock mechanisms on the ends of the bridges permit locking two or more bridges together so that a carrier with its load can be transferred from one to the other.

Because of ball-bearing wheels and smooth, raised, flat track treads, extremely little effort is required to propel either a bridge or carrier. Cleveland Tramrail equipment has a guaranteed starting effort of 15 lbs. and running effort of 10 lbs. per ton weight.

Cleveland Tramrail has been tried and proven in dozens of textile mills of all kinds and sizes. It is lifting and conveying cotton, wool, rayon, nylon and silk in every stage of preparation wherever the weight is more than one man can handle.

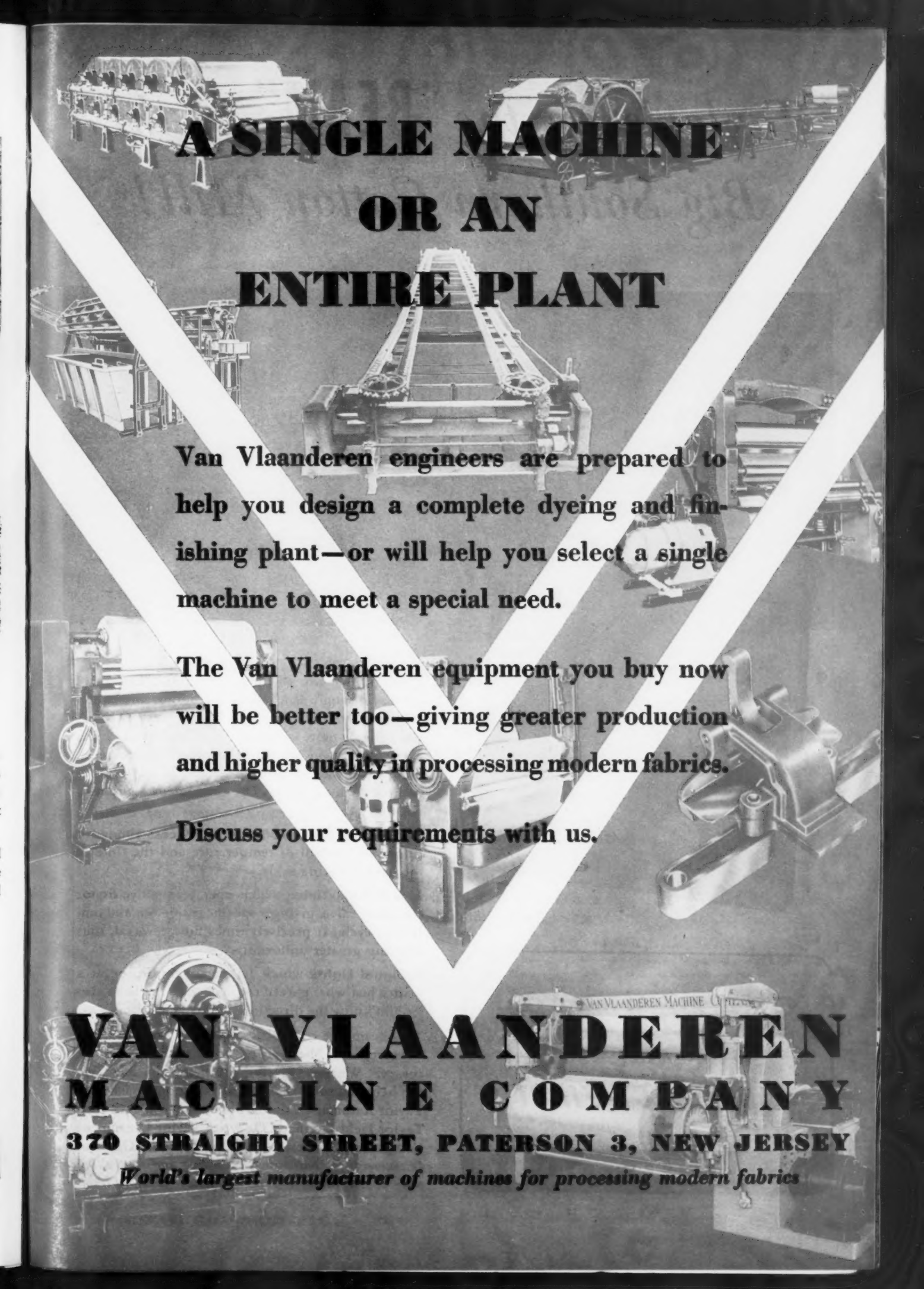
If you are interested in improved efficiency and many other important advantages that are possible with Cleveland Tramrail, you owe it to yourself and to your company to get the facts.

GET THIS BOOK!

BOOKLET No. 2008. Packed with valuable information. Profusely illustrated. Write for free copy.

CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
8457 EAST 287TH STREET, WICKLIFFE, OHIO

CLEVELAND TRAMRAIL
OVERHEAD MATERIALS HANDLING EQUIPMENT



A SINGLE MACHINE OR AN ENTIRE PLANT

Van Vlaanderen engineers are prepared to help you design a complete dyeing and finishing plant—or will help you select a single machine to meet a special need.

The Van Vlaanderen equipment you buy now will be better too—giving greater production and higher quality in processing modern fabrics.

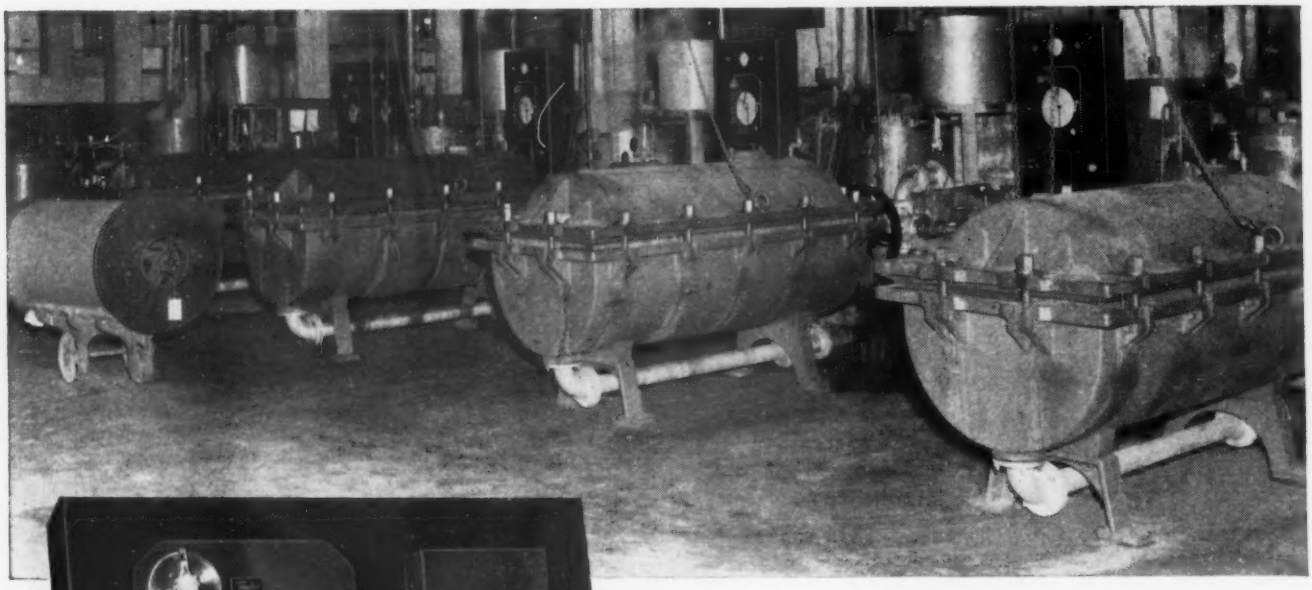
Discuss your requirements with us.

VAN VLAANDEREN MACHINE COMPANY

370 STRAIGHT STREET, PATERSON 3, NEW JERSEY

World's largest manufacturer of machines for processing modern fabrics

Taylor's on the "BEAM" in this Big Southern Cotton Mill!



STRICTLY top efficiency here! This battery of Taylor-equipped beam dyeing machines not only operates automatically—at minimum cost—but delivers more uniformly high quality than was ever possible with hand control. Instruments, mounted on a Taylor coordinated panel (insert), control each machine. The instrument equipment consists of:

1. A Fulscope Controller with Process Timer for automatic control of temperature and the time of the overall dyeing cycle.

2. A Flex-O-Timer which operates the dye liquor reversing valve, giving a specific inside-out and outside-in cycle. It precisely times flow reversal, thus assuring greater uniformity.

3. Signal Lights which let the operator see at a glance just what part of the cycle he's in. They also let him know the direction of flow at any time.

This beam dye control system is only one of many ways you can "beat rising costs with Taylor Accuracy." Whatever dyeing problems you have, we can help you solve them by working out an efficient Taylor Automatic Control System for you. Ask your Taylor Field Engineer! Or write Taylor Instrument Companies, Rochester, N. Y., or Toronto, Ontario. *Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.*

Taylor Instruments

MEAN

ACCURACY FIRST

IN HOME AND INDUSTRY

NOW

20,000,000 YARDS PER WEEK

BLEACHED IN DU PONT CONTINUOUS PEROXIDE SYSTEMS

THAT'S the total production figure from present installations. And, with continuous bleach construction under way in other mills, the 20,000,000 figure *will soon be doubled!*

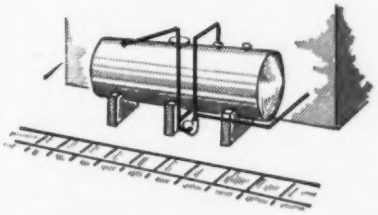
The Du Pont System is the right answer to modern bleaching requirements. It's continuous. It's speedy. It permits quality production. It's most economical. It's adaptable to mill requirements.

We'd like to tell you more about how the Du Pont Rope and Open-Width Systems can fit your bleaching needs. Du Pont bleaching experts will be pleased to work with you, to survey your plant, study your requirements, help you select the proper equipment and assist you in many other ways. E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Dept., Wilmington 98, Delaware.

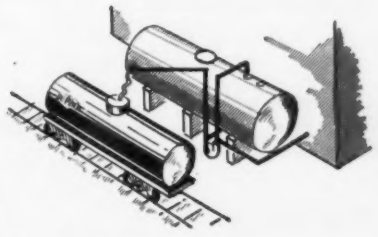
Tune in to Du Pont "Cavalcade of America," Monday Nights—8 p. m. EST, NBC.

If you need 5000 lbs. or more of "Albone" 35 (35% Hydrogen Peroxide) per month, you'll find a storage tank installation to be economical.

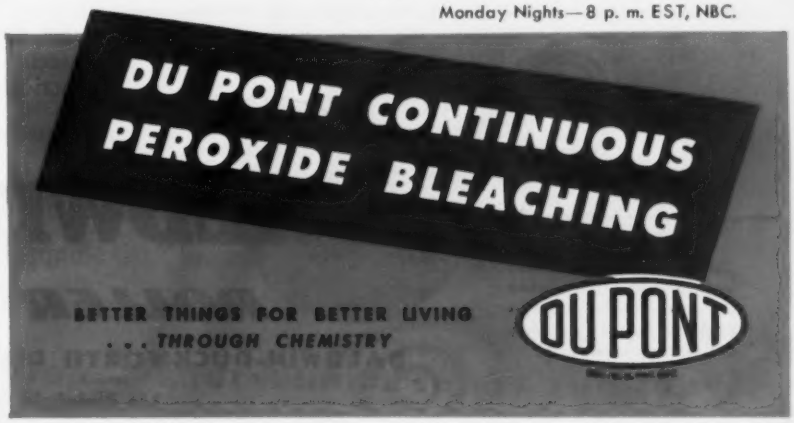
FOR GREATEST ECONOMY, CONSIDER:



TANK STORAGE AT THE MILL



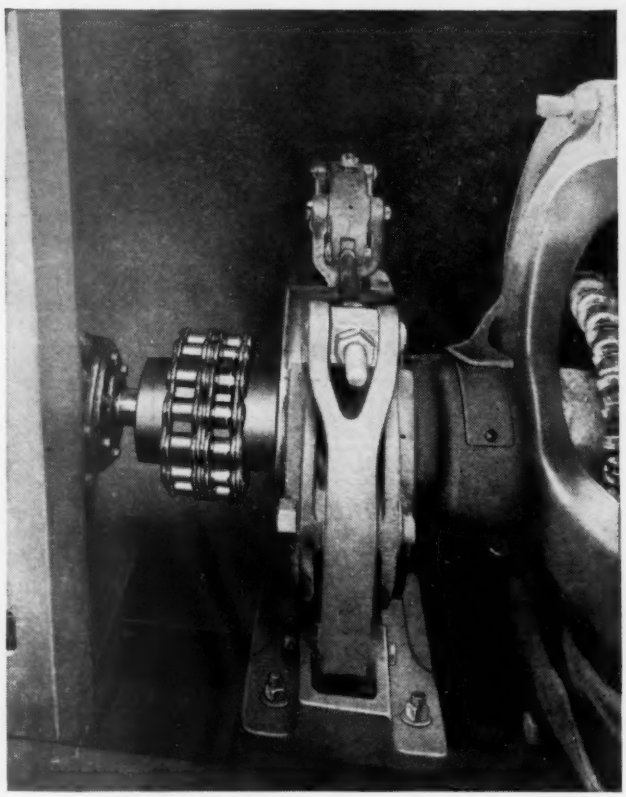
TANK CAR DELIVERIES



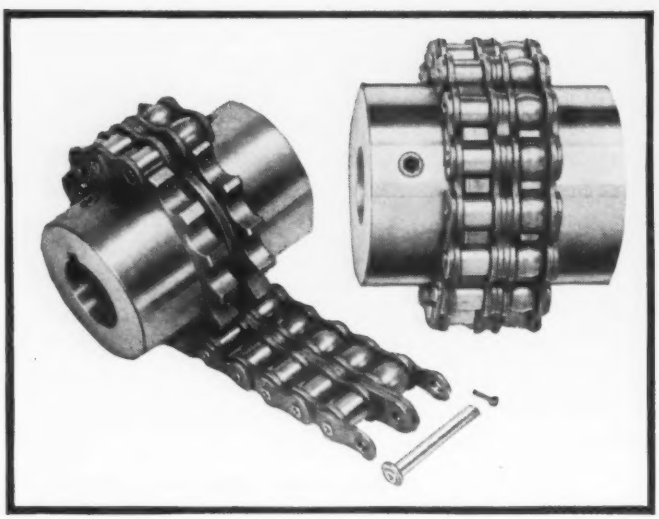
do you know Roller Chain...

makes the best Flexible Coupling?

① **IF YOU'RE LOOKING FOR** a flexible coupling that's efficient . . . extremely flexible . . . shock absorbing without backlash . . . that's easy to install, you'll find the new Baldwin-Rex Tru-Flex the coupling you want.

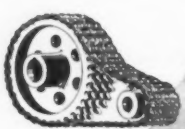


② **TRU-FLEX COUPLINGS** are distinguished by their oversize convex rollers on one chain strand. These rollers maintain only line contact with sprocket teeth, providing extreme and permanent flexibility. This design permits the coupling to accommodate shaft misalignments—without wear on sprocket and chain —and to absorb greater torsional shock loads. Snug fit of the chain assures far longer life than the "sloppy" fit on ordinary chain coupling.



③ **INSTALLATION** of Baldwin-Rex Tru-Flex Couplings is simple. It is merely necessary to wrap the chain over the sprockets, insert the connector and secure the cotter. Coupling removal is just as easy. Withdraw the connecting pin and remove the chain. The coupled halves are then separated.

Tru-Flex Couplings employ no short-lived material in their design. Their all-steel construction assures maximum service life.



The Baldwin-Rex Man can assist you in the proper selection and application of Tru-Flex Couplings for your machines. Call him or write direct to:

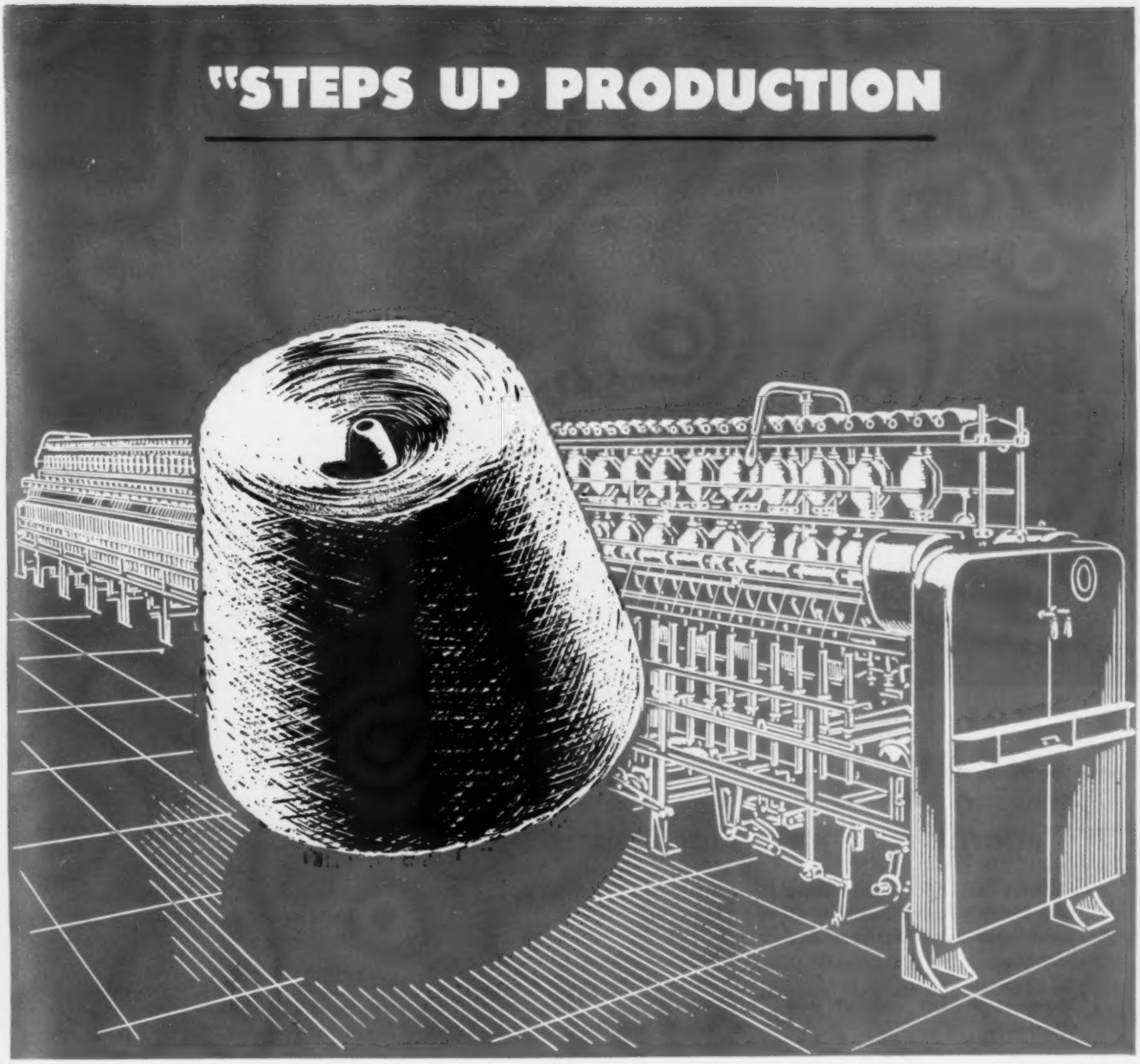
BALDWIN·REX

ROLLER CHAINS

BALDWIN-DUCKWORTH DIVISION OF CHAIN BELT COMPANY

346 Plainfield Street, Springfield 2, Mass.

"STEPS UP PRODUCTION



. . . with Tycol spindle oil"

TYCOL
INDUSTRIAL LUBRICANTS

Boston • Charlotte, N. C.
Chicago • Detroit
Pittsburgh • Philadelphia
Tulsa

TIDE WATER ASSOCIATED OIL COMPANY
17 BATTERY PLACE - NEW YORK 4, N. Y.

"Not a single tube lost . . .

Reduces spindle drag . . .

Reduces bolster losses . . .

Reduced drag . . .

Cuts down maintenance costs . . ."

—says a textile mill operator. "With Tycol Spindle Oil," he goes on, "we're able to operate continuously at top speed—and we don't have to worry about the oil losing its body at operating temperatures."

For further information about Tycol Textile Oils, get in touch with your nearest Tide Water Associated Office today.

LUBRICATION—"ENGINEERED TO FIT THE JOB"

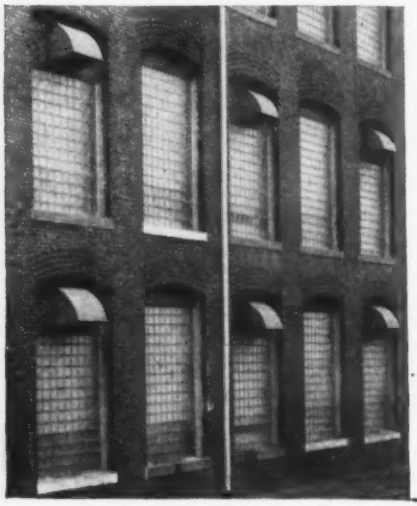
AMCO fan units for controlling air intake are easily installed without sacrifice of interior machine set-up.

EQUAL THESE

BENEFITS FROM AMCO HUMIDIFICATION AND COOLING

- Reduces excessive temperature and holds relative humidity at point best suited to fibre and process.
- Increases worker comfort and efficiency.
- Speeds production in high friction (heat) areas.
- Assures evener yarn counts and increases breaking strength.
- Waste and fly greatly reduced.
- Gradually increases regain for good roving and consequent better spinning.
- Drafting of fibres smoother and more compact.

Modern, insulative glass bricks pave the way to interior heat and moisture control in this mill. AMCO fan-powered air intakes alternate with automatically controlled vents.



• If your mill is already equipped with a humidification system, you have taken the first step to improve quality and increase production.

Your next step—AMCO Evaporative Cooling—utilizes your present humidification system to obtain top quality and maximum production.

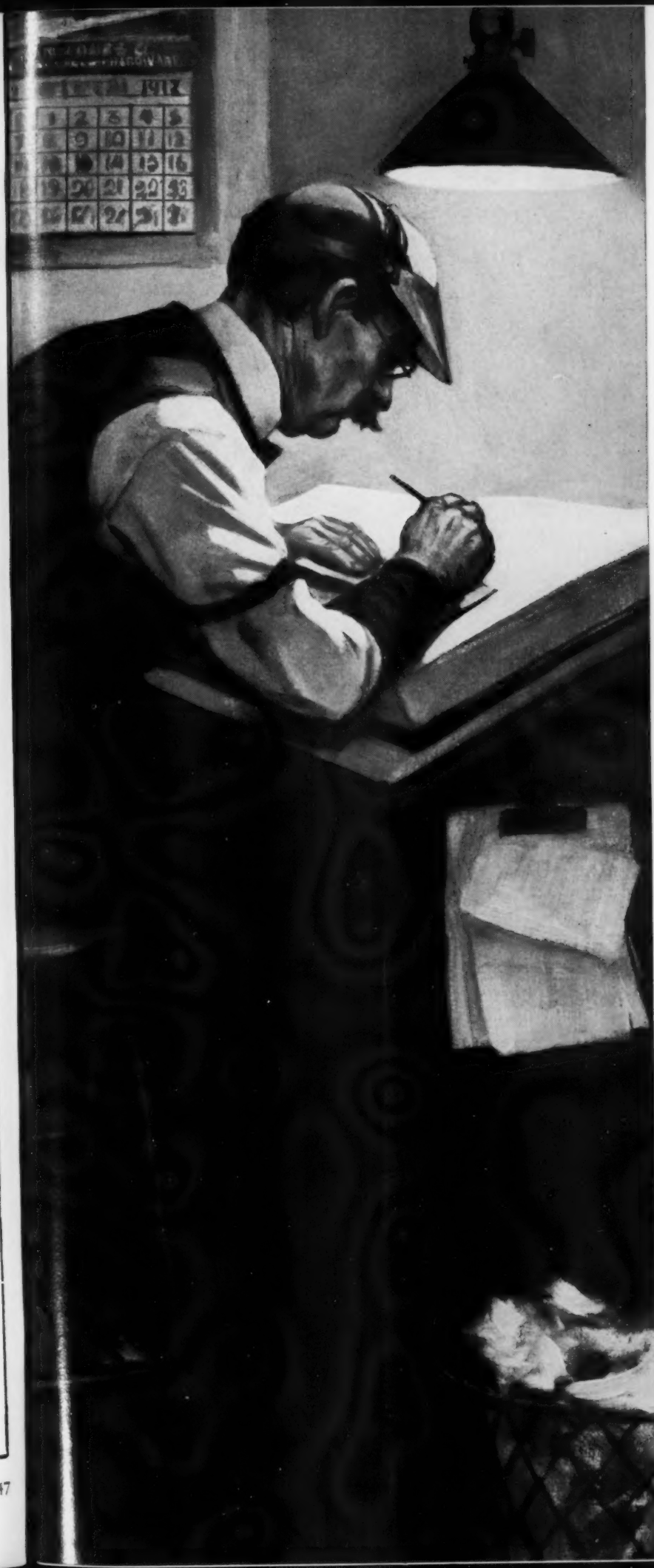
With the AMCO Evaporative Cooling System the desired relative humidity is accurately maintained by introducing atomized water spray. The frictional heat of high speed machines is absorbed by evaporation of the moisture in conjunction with carefully controlled air flow. No expensive changes are necessary . . . no air ducts to install . . . no jump in maintenance costs.

Why not take this second step now? An AMCO engineer will be glad to show you how you can modernize your plant simply and economically for better quality and increased output.

AMCO

HUMIDIFICATION and COOLING

AMERICAN MOISTENING CO. AFFILIATED WITH GRINNELL COMPANY, INC.
PROVIDENCE, R. I. • BOSTON • ATLANTA • CHARLOTTE



The Disappearing Pension Fund— Circa 1912

Uncle Henry, in his high starched collar and celluloid cuffs, liked to talk about his "progressive" employer with his enlightened pension plan.

For 30 years Henry watched the pension fund grow on paper. In 1912, when he was ready to retire, his employer said: "Henry, all retirements under the pension plan are postponed indefinitely. The pension fund is part of the working capital. And you know how bad business is today. I'm dreadfully sorry."

Uncle Henry was sorry too.

Take a look at your last Financial Statement: Are you carrying the money that you charge off for Depreciation as a "*current*" or as a "*fixed*" (plant) asset? . . . Is it money in the bank or is it money that you owe to yourself?

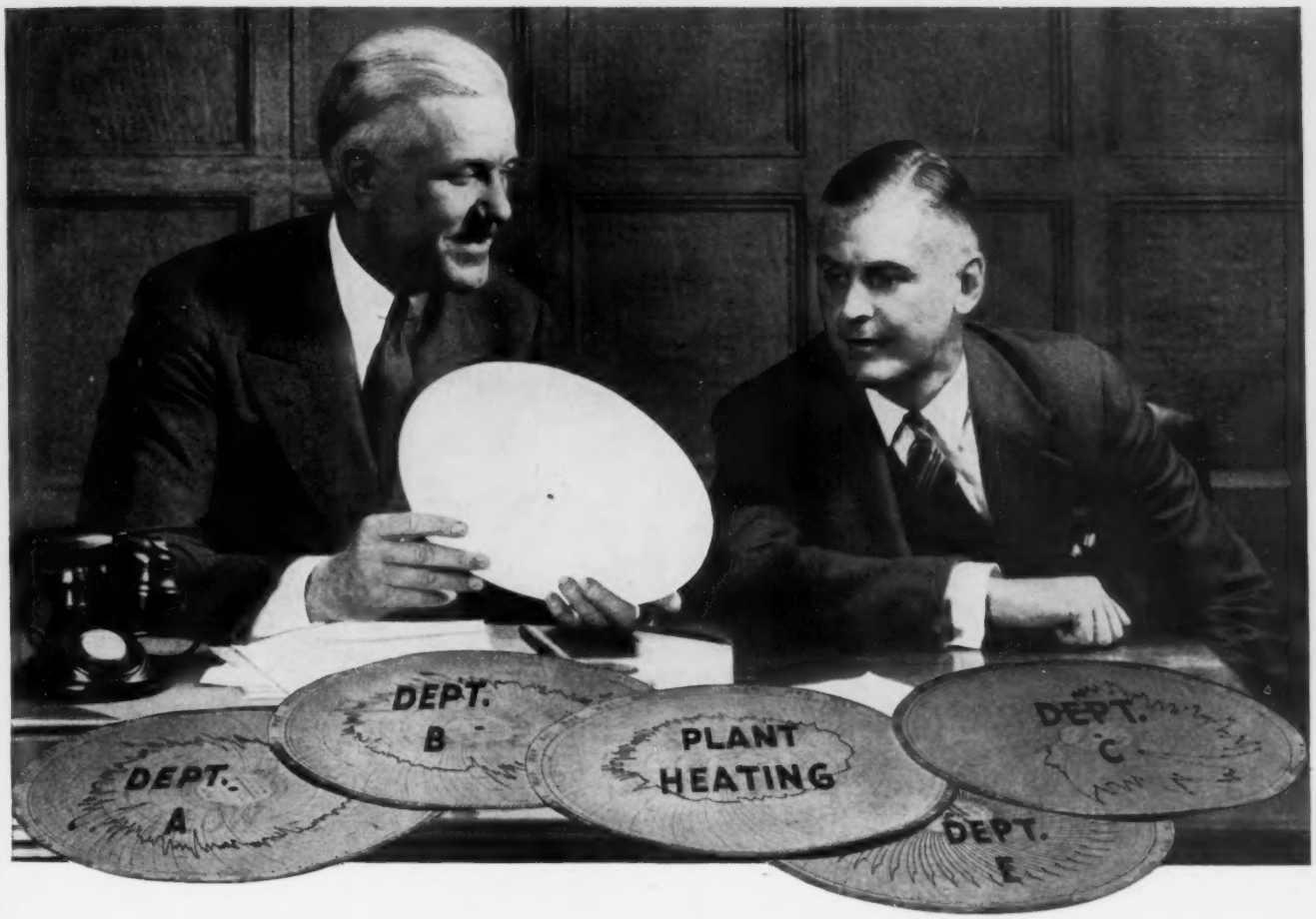
Write today on your business stationery for your copy of "Good Housekeeping in Business" —a pamphlet which presents what we believe to be a *logical* basis for handling depreciation money. We will be glad to send it to you.

TEXTILE MACHINE WORKS
READING, PENNA.

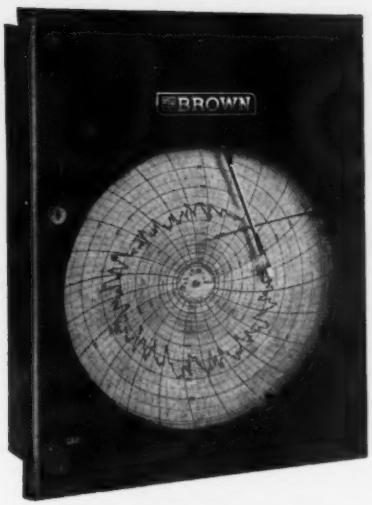
Beautiful as a Butterfly . . . Gossamer sheer, breathtakingly lovely, flawlessly-knit full-fashioned stockings mean added attraction to the loveliest of ladies. To assure these finer qualities in full-fashioned knitting, TMW Needles are "Fixture Drawn"*, a special TMW patented process that holds the needles straight and true. Let us put your needle bars in shape for faster, more accurate, more profitable knitting.

*Reg. U. S. Pat. Off.

TEXTILE MACHINE WORKS • READING, PA.



Complete Cost Accounting Must Include Steam



Brown Electric Recording and Integrating Flow Meter

If steam were a raw material, every textile mill would make precise accounting of its consumption.

Steam is costly. It is often wasted. Departments draw far more steam than needed for efficient operations because it is "free".

Many textile mills have installed the Brown Steam Accounting System and realized substantial savings. Steam wastes are detected. Consumption is lowered and savings quickly repay the small investment.

Hub of the Steam Accounting System is the Brown Recording and Integrating Flow Meter. The exclusive features of this instrument tell you where steam goes, when it goes, and how much goes. It is then easy to figure costs for any department or process.

With rising fuel costs, now is the time to save steam. Write for information about the Brown Steam Accounting System.

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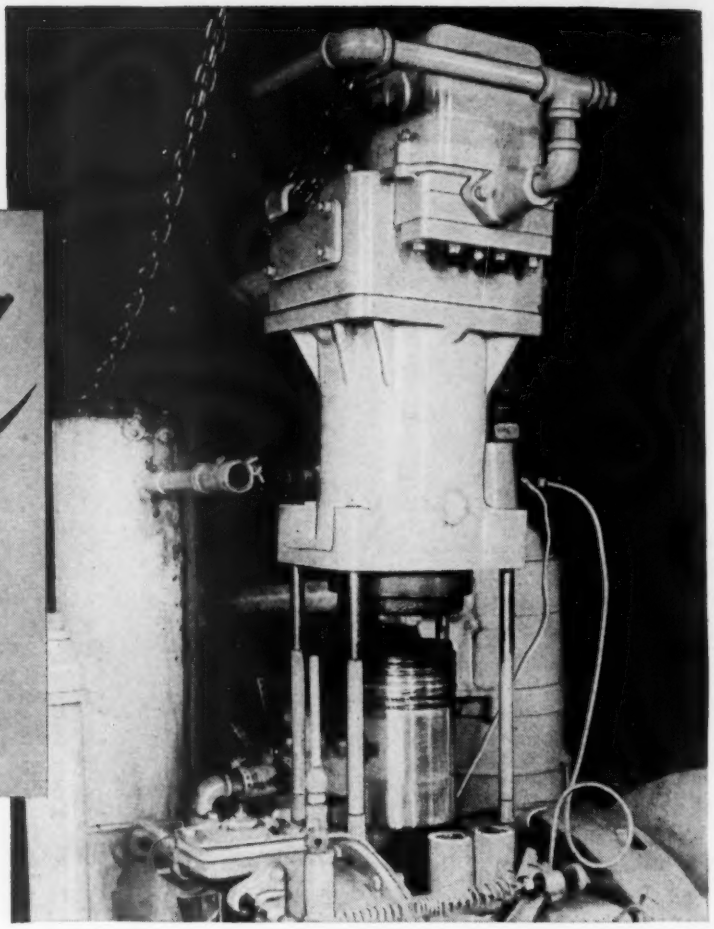

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modernizing all your old bobbin changing looms at lowest cost.

What It Accomplishes—

Permits increasing bobbin capacity with practically the same size shuttle fitted to your present lay-end boxes.

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Eliminates costly replacement of lay-ends or new lays—No lengthy changeover time—No shifting of looms—No greater floor space required—No leasing out and rewarping—No loss of production.

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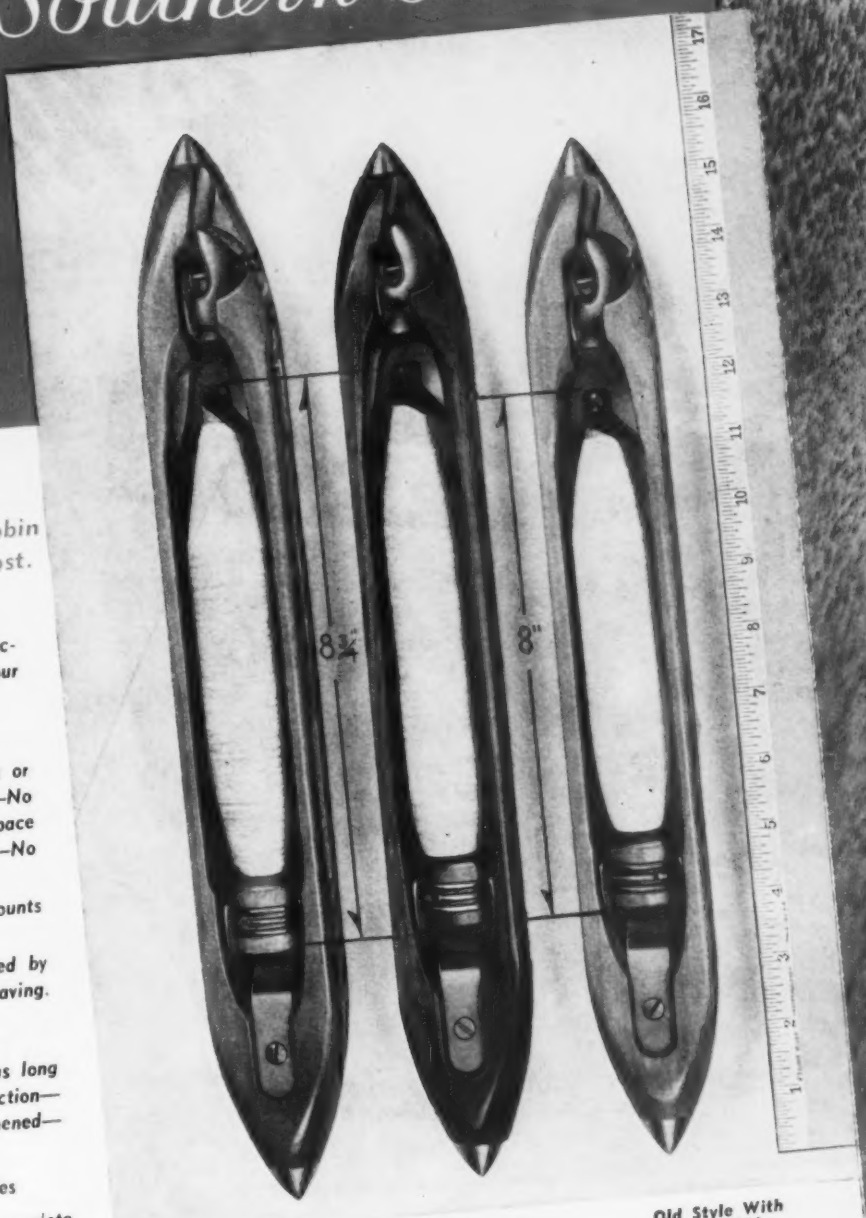

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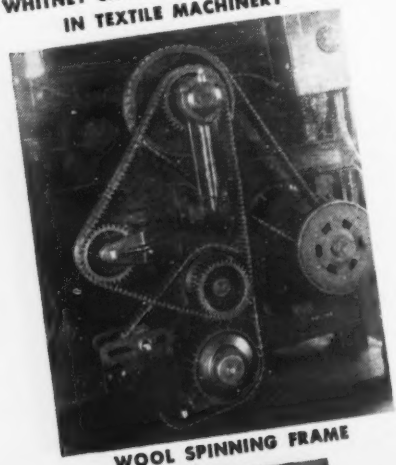
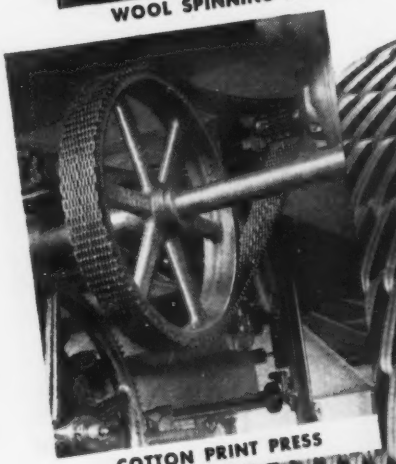


WOOL SPINNING FRAME



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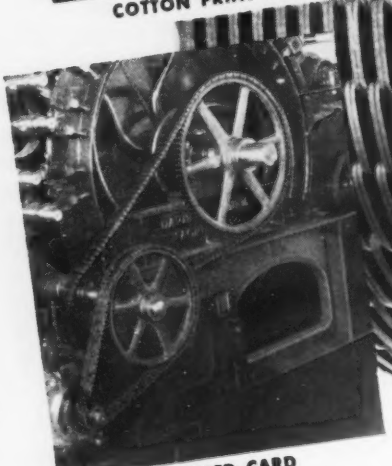
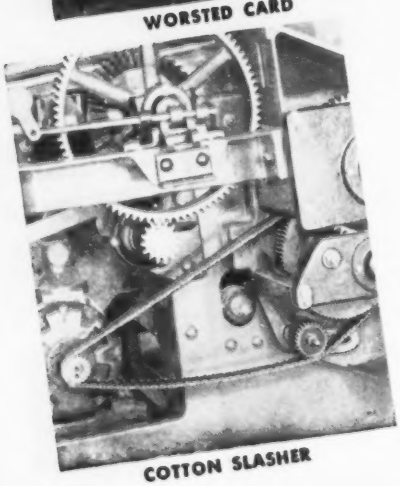


WORSTED CARD



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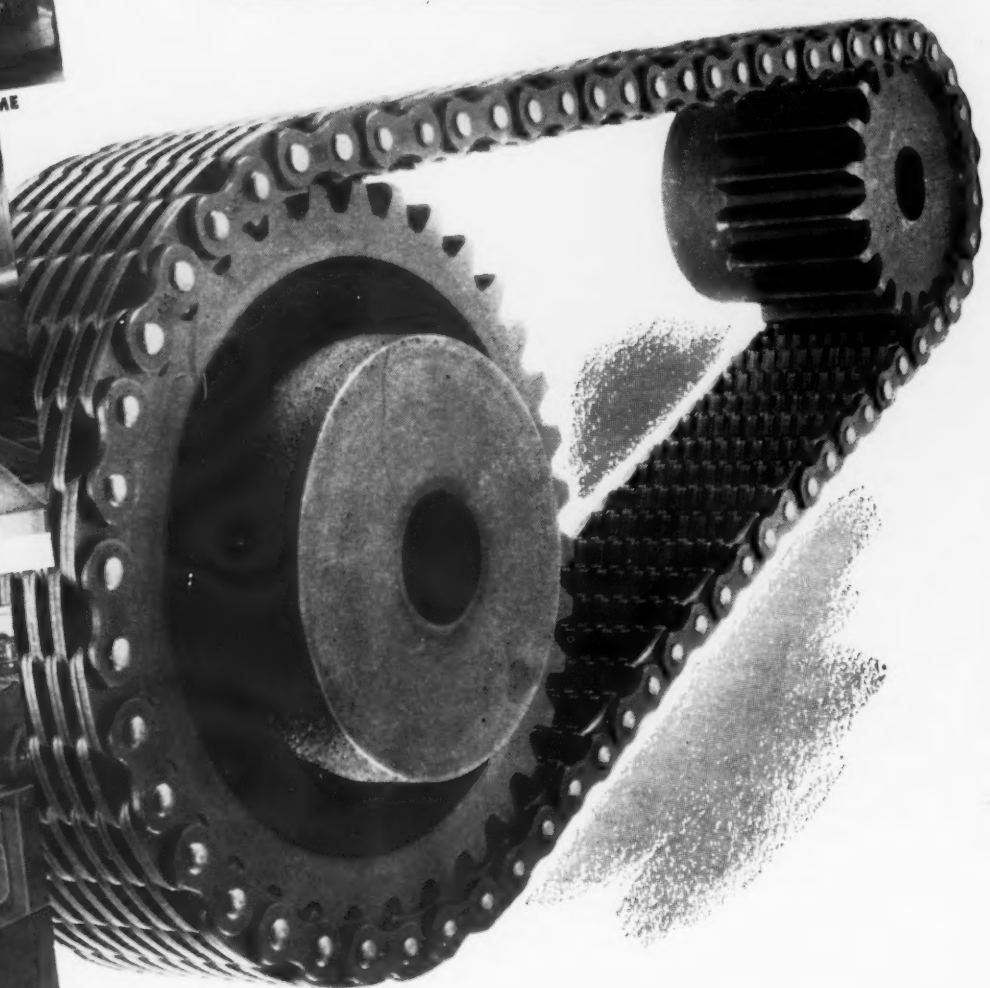
It's Whitney

SILENT CHAIN DRIVES



Smoothly and silently, Whitney Silent Chain Drives deliver *full power* to driven elements without *slippage* or friction loss. Their positive grip transmits constant uniform speed . . . assures product uniformity . . . saves money by minimizing "seconds" and rejects. Precision built with hardened alloy steel parts, they give maximum service with little maintenance even under the severest of operating conditions.

Teamed up with these efficient chains are accurately made Whitney Cut Tooth Sprockets . . . correctly designed to insure smooth, quiet performance and maximum operating efficiency.

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77

It's the SIDES OF A V-BELT That Really GET the WEAR!

—— ONLY the SIDES Touch the pulley!

Diagram of V-Belt in Sheave Groove

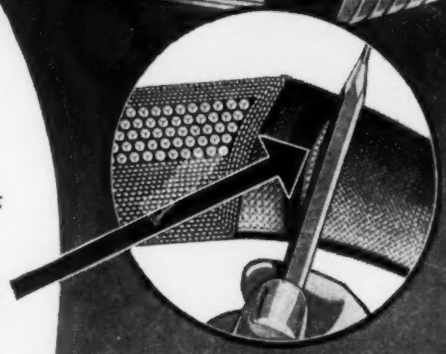
The *SIDES Do ALL the GRIPPING*

—They Pick Up ALL the LOAD!

The moment you think about it, you realize, of course, that the *sidewall* is the part of a V-Belt that really gets the wear.

It's the *sidewall* that has to grip the pulley. It has to *pick up* all the power from the driver pulley, transmit that power to the belt as a whole and then, once more, deliver the power to the driven pulley. And the sidewall takes all the wear against the sheave-groove wall.

That is the perfectly natural reason why you have always noticed that the sidewall of the *ordinary* V-Belt is the part that *wears out first!*



Now See How the Patented CONCAVE SIDE SAVES Sidewall Wear—Lengthens Belt Life.

Since the sidewall is the part that wears out first, anything that prolongs the life of the sidewall will lengthen the life of the belt.

The simple diagrams on the right show exactly why the ordinary, straight-sided V-Belt gets excessive wear along the middle of the sides. They show also why the Patented Concave Side greatly reduces sidewall wear in Gates Vulco Ropes. That is the simple reason why your Gates Vulco Ropes are giving you so much longer service than any straight-sided V-Belt can possibly give.

—and the Concave Side is *MORE IMPORTANT NOW* Than Ever Before!

Now that Gates *SPECIALIZED* Research has resulted in Super Vulco Ropes capable of carrying much heavier loads —up to 40% *higher horsepower ratings* in some cases— the sidewall of the belt is called upon to do even more work in transmitting these heavier loads to the pulley. Naturally, with heavier loading on the sidewall, the life-prolonging Concave Side is more important NOW than ever before!

The CONCAVE SIDE is a GATES PATENT

Fig. 1 Straight Sided V-Belt

Fig. 1-A How Straight Sided V-Belt Bulges When Bending Around Its Pulley

You can actually feel the bulging of a straight-sided V-Belt by holding the sides between your finger and thumb and then bending the belt. Naturally, this bulging produces excessive wear along the middle of the sidewall as indicated by arrows.

Fig. 2 Gates V-Belt with Patented Concave Sidewall

Fig. 2-A Showing How Concave Side of Gates V-Belt Straightens to Make Perfect Fit in Sheave Groove When Belt Is Bending Over Pulley.

No bulging against the sides of the sheave groove means that sidewall wear is evenly distributed over the full width of the sidewall —and that means much longer life for the belt"

4712

THE GATES RUBBER COMPANY DENVER, U. S. A., *"World's Largest Makers of V-Belts"*

GATES VULCO ROPE DRIVES

Engineering Offices and Jobber Stocks **IN ALL INDUSTRIAL CENTERS** of the U. S. and 71 Foreign Countries

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THE MARK OF SPECIALIZED RESEARCH

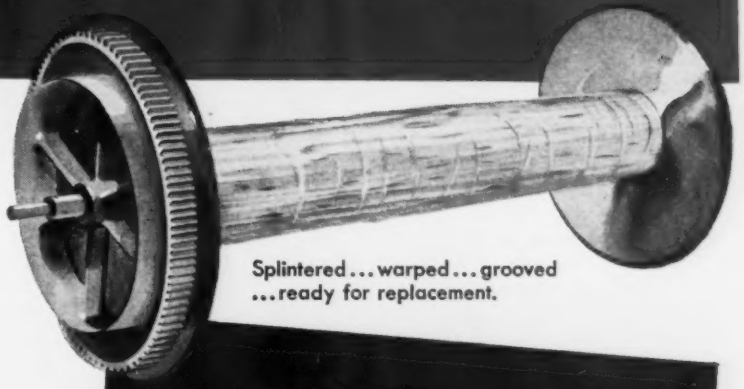
Build 6 advantages into your LOOM BEAMS

Better than new—you'll say of your loom beams when you rebuild them in your own machine shop with Alcoa Aluminum Barrels. Replace the worn-out wood with barrels of Alcoa Aluminum Extrusions, and your loom beams will be better in these six ways:

1. **Smooth barrel stays smooth** and clean throughout a long life.
2. **No splintering or warping**—and no warp torn, since moisture and rough handling do not affect aluminum.
3. **No staining of warp** from rust or corrosion.
4. **Sturdy construction** for safer stacking.
5. **No grooving or crushing** under pressure of synthetic yarns.
6. **Light weight** for easy handling.

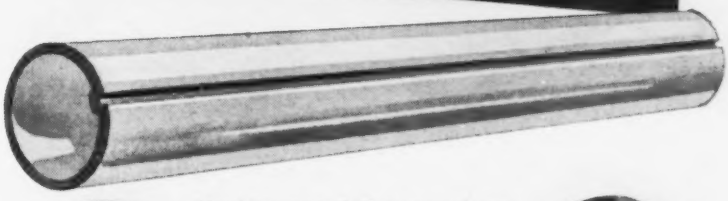
Today, start the loom beam rehabilitation program that will make them better than new. Replace some of your worn-out wooden barrels with aluminum, and check the above advantages.

Order these extrusions in the lengths you need, from the sales office nearest you. Or write ALUMINUM COMPANY OF AMERICA, 1942 Gulf Building, Pittsburgh 19, Pennsylvania.



Splintered... warped... grooved ...ready for replacement.

REPLACE WOOD WITH EXTRUDED BARRELS OF ALCOA ALUMINUM



Aluminum-extruded to correct profile, in the lengths you require.

Rehabilitated loom beam, ready for longer service.

MORE PEOPLE WANT MORE ALUMINUM FOR MORE USES THAN EVER

ALCOA FIRST IN **ALUMINUM**

IN EVERY COMMERCIAL FORM

first to develop a corrugated LUGGAGE box

CORRUGATED BOARD, long noted for its packaging utility value, can go "ritzy" too. H & D proved it by developing the first corrugated luggage box.

Smart, sturdy and lightweight, the richly grained "airplane style" corrugated luggage box has since been adapted to a host of repeat-use applications—from ice skates to camping equipment to children's coloring kits.

H & D is noted for "firsts"—the first package laboratory, the first corrugated canned-food box, the first corrugated shipping-display box, many others. Thus H & D serves industry well by reducing transit damage losses, by lowering shipping costs and by making products more attractive and salable through better packaging. The Hinde & Dauch Paper Co., 4711 Decatur Street, Sandusky, Ohio.

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POLITICAL ACTION—
Labor's Blind Alley

THE approach of the 1948 elections brings organized labor in America to a fork in the road.

Straight ahead lies the familiar route of free collective bargaining. Except for an occasional side trip, labor has been traveling it for years. On this road the role of government is to act as traffic cop, removing obstructions for all travelers.

The fork is the road of political action—the road to special privilege for labor. On it government is called upon to clear a special right of way for organized labor—to push aside all others.

Which of these two roads will organized labor take?

Most American labor leaders are now urging their followers toward political action. Their first objective is to "get" all members of Congress who voted for the Taft-Hartley Act. AFL plans to raise a $5 million political combat fund through contributions and a per capita tax on its membership. CIO is soliciting $1 donations for political action from its 6,000,000 members.

For their own sake, however, as well as for the welfare of the country as a whole, the rank and file of organized labor will do well to stop, look and listen before they turn their unions into political action squads. If they examine the facts for themselves, they will make two significant discoveries:

I. Political action is a blind alley for labor.
II. The Taft-Hartley Act is an essential bulwark of free collective bargaining.

A brief discussion of these two statements will show what they mean to organized labor.

I

Political action is a blind alley for labor.

If there is any doubt about that statement, a good way to dispel the doubt is to look at European countries where organized labor has been following a political action line.

Britain, where the Labor Party is in power, is such a country. How is labor faring there? Measured by the good things money buys, the average hourly wage in Britain is less than two-thirds of what it is in the United States. Part of the difference may be accounted for by the fact that the British Isles are poorer in natural resources than the United States. Another reason is the war damage to Britain's plants.

But there are two other big reasons why the British wage earner is far behind the American worker in enjoying the good things of life:

1. The *incentive to produce* has been dulled by vote-catching programs which promise economic security and a levelling of incomes. Lulled by promises of cradle-to-the-grave security and discouraged by high taxes, the British have descended to a state neatly described by the London *Economist:*

"Nobody gains anything from activity or suffers anything from inactivity."

2. To run a program like Britain's requires more and more government functionaries. Civilian employees of the British government have increased by 50% since before the war, putting one worker out of ten on the government payroll. More and more people stop producing and spend their time instead cutting up what others produce. The result is smaller production, higher taxes and lower real wages.

The British Labor Party must accept most of the responsibility for this sorry state of affairs. It is due primarily to a program of political action by organized labor which promised the individual worker security and equality of income—*but which can not deliver either because the incentive to work is gone.*

The lesson for American wage earners is clear. Political action by unions to enforce the economic fallacy of more-and-more-for-less-and-less will end by impoverishing the working man—and bringing the nation to ruin.

Unions exist for collective bargaining, not for politicking.

II

The Taft-Hartley Act is an essential bulwark of free collective bargaining.

Bargaining works satisfactorily only when both parties—management and labor—think they are getting a fairly even break.

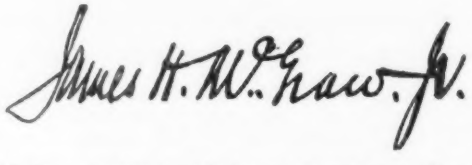
Management was very sure that the Wagner Act, as administered from 1935 to 1947, was giving employers the short end of the stick. Furthermore, management's feeling of frustration was no whim. It was justified by case after case where rights were granted to organized labor with no counterbalancing recognition of the rights of management, of individual workers or of the public.

The Taft-Hartley Act goes a long way toward establishing equality in employer-union relations. It may fall short of doing a perfect job. *As a subsequent editorial in this series will show, it leaves virtually untouched the public menace of industry-wide bargaining and labor monopoly. And it leaves unprotected what should be the individual's right to hold a job without joining any particular organization.* But it *does* provide some major safeguards for collective bargaining by striking at abuses.

Organized labor, therefore, has no cause to damn the members of Congress who voted for the Taft-Hartley Act. True, the law will check what has been an uninterrupted march of the labor union bosses toward absolute power. It will do so just as laws in the past—The Sherman Anti-Trust Act, for example—have checked management when it was too greedy. And, as the first section of this editorial points out, the time has come to check the march of the big labor bosses.

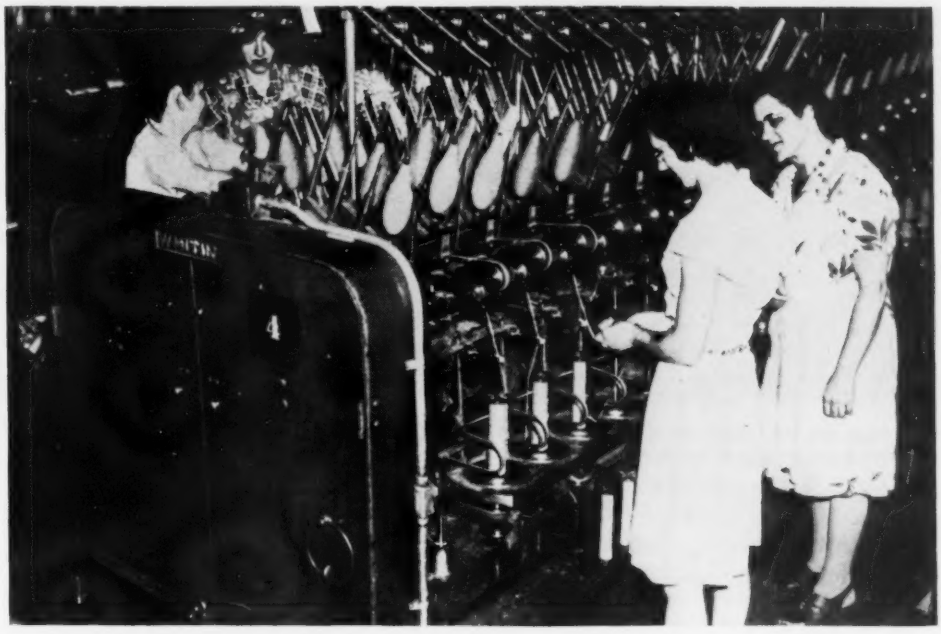
Fundamentally, the Taft-Hartley Act gives free collective bargaining a new lease on life. The old lease was running out because the Wagner Act stacked the cards against employers, against individual workers, and against the public.

The road to free collective bargaining is now clear of many of the most menacing obstructions. It is the only road for labor to take in its own self interest. Union workers who let their leaders lure them down the blind alley of political action will do so at their own peril—and at the peril of this great industrial nation.



President, McGraw-Hill Publishing Company, Inc.

THIS IS THE 63RD OF A SERIES



Instructors trained in teaching methods watch filling-twisting trainees demonstrate the piecing of broken ends.

TRAINING FOR ALL

Is Bigelow-Sanford Objective

HIGHLIGHTS: *Intensive program continued since war—All levels of employees and management included—Induction and orientation considered important — Conference method used for supervisor training —Craftsmanship course extends over four years.*

By JOHN GAGNON
Manpower Manager
Bigelow-Sanford Carpet Co.
New York, N. Y.

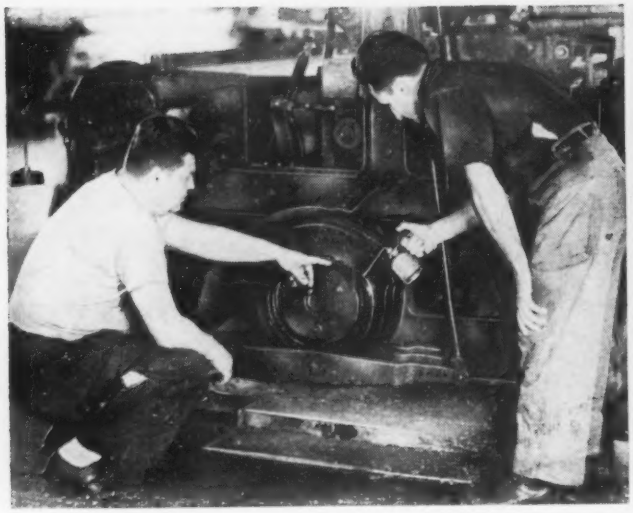
SHORTLY AFTER V-J DAY, many companies which had done considerable training during the war seriously depleted or completely eliminated their training departments. The general feeling was that with the end of hostilities the urgent need for peak production had passed and that training was a luxury which could be afforded only in time of war. A large number of these companies have since found that, far from being a luxury, employee training is a necessity.

Recognizing the important and permanent place of training in industry, the Bigelow-Sanford Carpet Co. about two years ago embarked upon the most comprehensive training program in its long history—a program which includes all levels of employees, from the top executives down to the lowest-paid worker.

Newly hired employees, sometimes accepting employment for the first time or working in an entirely different industry, find it difficult to adjust themselves to a strange environment. Left to their own devices and permitted to "catch on" as best they can, they lose valuable time in their introduction to their new company. Costly mistakes are made through ignorance of company policy and rules and regulations. The result is usually excessive waste and seconds, low earnings, high turnover, and poor morale.

To avoid these mistakes, an induction program has been developed at Bigelow-Sanford for new employees which includes conferences led by a trained conference leader. In these sessions, they receive useful information about the company: its history, policies, rules of conduct, the products it manufactures, its position in the carpet industry, and its future. They are told about working hours, how to figure their pay, the company-paid insurance plan, and other benefits and services. These and many other subjects are discussed—all of them so important to the new worker.

At the conclusion of the conferences, the new employees are escorted



The importance of putting the right quantity of the right oil in the right place at the right time is pointed out by weaver-instructor Leon Tatara.

"Let him show you" is the step being followed by an instructor as he watches a trainee remove a full jack spool from the finisher card.

to their departments where each meets the foreman who will supervise and guide him perhaps for years to come. The foreman then takes his new employees on a tour of the department, pointing out wash rooms, cloak rooms, time cards, refreshment stands, fire exits, and other items of interest. At the conclusion of this tour, the new employees are introduced to the workers who will work side by side with them. The final step is to begin on-the-job instruction. The foreman either does this himself or assigns a trained instructor.

The induction does not end here, however. The foreman is expected to check frequently the progress of the new employees for several days and sometimes for weeks or months. He carefully watches attitudes and output so that he can eliminate little early irritations which can so easily grow into big ones if they are not handled in time.

The induction program is not expected to eliminate all mistakes and reduce turnover among new employees completely, but it helps materially in attacking these problems if it is properly installed and followed up.

SPECIAL ORIENTATION. In most companies, there are groups of employees who, if placed immediately on the jobs for which they were hired, become so busy that they never find time to get around the plant to familiarize themselves with operations about which they should know in order to carry on their jobs most effectively. Employees who fall into this category are engineers, personnel department employees, and other staff people. It is not uncommon to find interviewers hiring people for operations which they have never seen. It often takes people falling in this group years to cover a plant adequately.

To solve this problem, Bigelow developed an orientation program covering a period of from four to 26 weeks, depending upon the nature of the individual's occupation. An employee enrolled in this program is given an opportunity to study every operation with which he should be familiar. He is introduced to the superintendents of the departments, the overseers, and foremen. As training in each department is completed, the superintendent submits a report in writing to the training supervisor. In this report, he rates the trainee on his initiative, ability to get along with supervisors and workmen, and other factors. These reports are considered important because they usually indicate how well the trainee will get along in the future when he has problems dealing with the various departments.

This program has paid for itself many times over. It has enabled the new employee from the very first day to do a more effective job than would otherwise have been possible; it has made for better understanding of production problems among staff people; and it has resulted in better understanding and cooperation between line and staff.

ON-THE-JOB TRAINING. It was not so many years ago that the accepted practice in most companies was to hire a new employee, put him on the job with an oldtimer who often held back important information, and hope that the employee would learn the job somehow. The last war emphasized the need for planned training, particularly on the job. With the help of government and state agencies, this phase of training was accelerated at a rapid pace. Today it still receives as much and sometimes even greater attention in many plants.

During the war, all Bigelow foremen received Job Instructor Training to better equip them to train new employees on the job. Since the war, every foreman has participated in a refresher course in job instruction.

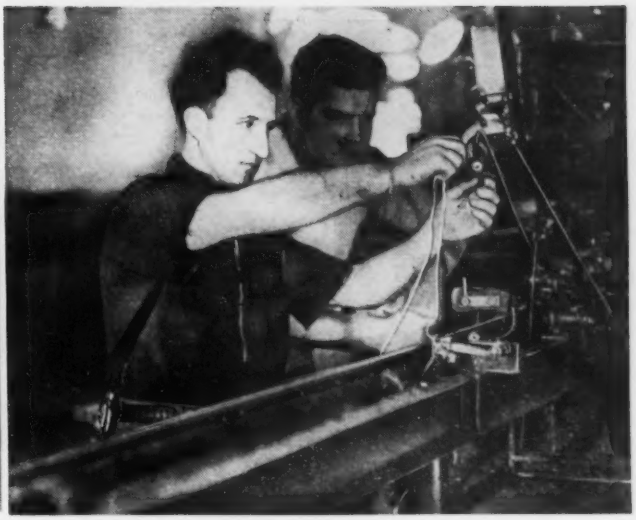
New employees are trained by their foremen wherever possible, since it is recognized that instruction is a part of the foreman's job. Where large groups are involved, however, new employees are taught by trained instructors who are carefully selected because of their ability and willingness to impart knowledge to others. There are now over 60 job instructors teaching more than 20 manufacturing operations.

Planned on-the-job training has proved of considerable value in shortening learning time, increasing individual earnings, reducing turnover, and increasing productivity particularly during the learning period.

PRE-SUPERVISORY TRAINING. During the war years, many employees who were workers one day returned to work the next day to find themselves elevated to supervisory positions, often without any warning. Management found through bitter experience that men, no matter how capable, cannot be expected to discharge supervisory responsibilities effectively without adequate training and preparation for the job.

At Bigelow, a program of training has been developed for the newly appointed foreman. It is not unlike many other programs of its kind in use throughout the country for many years. The program is a combination of conference and on-the-job instruction. The new foreman participates

***A production superintendent** trained in leading a conference evokes discussion from members of a panel group at the recent Production Management Conference.*



***Repair of broken filling** by a trainee is watched closely by weaver-instructor Tatara at Bigelow's Amsterdam plant. [This photo also appears on the front cover.]*

for part of the day in group discussion sessions on such subjects as company practices and policies, union contract interpretation, discipline, cooperation with others, planning one's work, handling and preventing grievances, and many others which are related to the supervisor's job. The remainder of the day, the foreman is given an opportunity to practice on the job, under a competent supervisor, what he has learned in conference groups. Visual aids on management, as the U. S. Office of Education films and Vocafilm Corp. series, are included in the program.

Supervisors who have taken this course report that it has been of considerable help to them in getting a flying start on their new jobs. It relieves a great deal of the tension which is usually present when an individual assumes for the first time a position of considerable responsibility, and it helps to eliminate many of the early mistakes which supervisors often make through no fault of their own.

CONFERENCES. Experience at Bigelow has demonstrated that supervisory training, to be most effective, must be a continuing program. To conduct supervisory training when an urgent need has arisen or after a lapse of a given period of time is not enough. The supervisor's job has become so complicated that new training problems are continually presenting themselves. When a new union agreement is signed, for example, interpretation sessions are held to discuss new clauses and changes in old clauses. It is important that the supervisor's interpretation of each clause agrees with that of the people who negotiated the contract. Case studies of grievances which have occurred are an aid to better handling of grievances in the future. New policies and changes in procedures are always good material for conference discussion. It is an established practice at Bigelow to discuss proposed changes in policies and procedures before the final drafts are written. There is a great deal of management information to be passed down the line and some to be passed up the line, and the best way to do it has proved to be holding group discussion meetings. Each supervisor has a loose-leaf "Grievance Digest" containing information on new contract-clause interpretations, and sheets on mishandled grievances with full information on proper procedure to insure that such mistakes are not repeated.

Supplementing conferences as training aids are supervisory news letters, magazines, and other publications—all designed to assist the supervisor in doing a better job and to keep him abreast of the latest techniques.

Another very important addition to the supervisory training program has been the yearly Bigelow-Sanford Production Management Conference which all foremen attend at some place, usually a resort inn, miles away from the plants. At these meetings, the foremen have an opportunity to hear nationally-known speakers discuss subjects of prime importance to them. They receive from the president and other top executives of the company first-hand reports of the company's activities, present position, and plans for the future. There are group discussions at which supervisors are asked to give their opinions and make recommendations which are later read to the entire conference group. There is also a recreation period and social hour, during which executives and su-

(*Continued on page 226*)

Bigelow Program

Lectures, discussions, and visual aids are combined in this planned program for Bigelow's pre-supervisory training program.

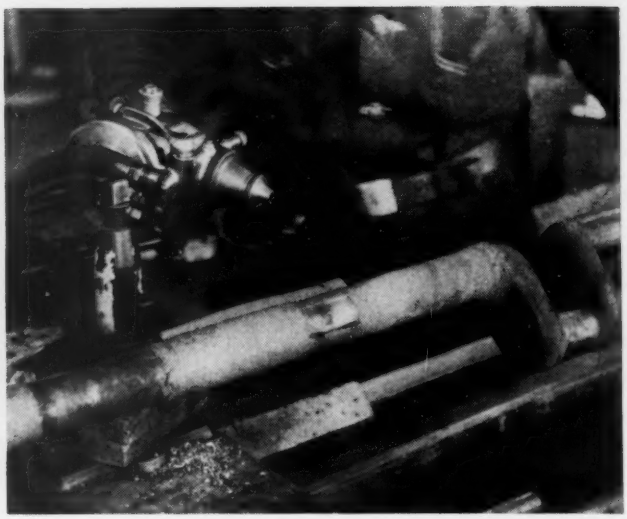
Pre-Supervisory Conferences

1 & 2. Bigelow organization—charts, procedures, policies
3. Duties and responsibilities of a supervisor
4. The foreman as a manager
5. The supervisor as a leader (Film, part I)
6. The supervisor as a leader (Film, part II)
7. Planning and layout work (Film)
8. Machine efficiency
9. Quality control
10. Cost engineering—time study, incentives
11. Cost engineering—methods, cost analysis
12. Union agreement
13. Grievance procedure (case studies)
14. Safety and housekeeping
15. Placing the right man on the job (Film)
16. Instructing the worker on the job (Film)
17. Maintaining workers' interest (Film)
18. Discipline—giving orders and instruction
19. Supervisory women workers
20. Working with other supervisors
21 to 25. Job relations training
26 to 30. Job instructor training

Additional Conferences (If Desired)

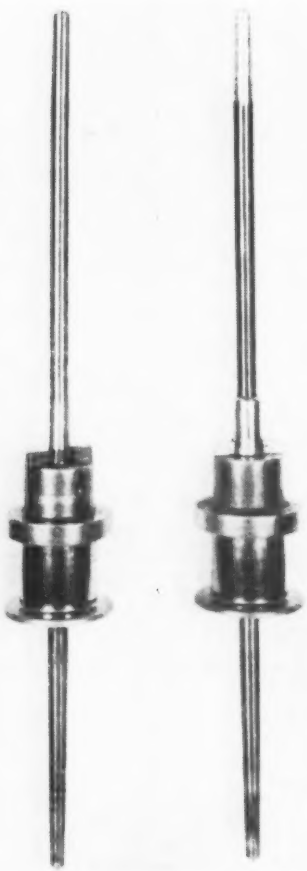
1. Waste reduction
2. Care of equipment
3. Understudies
4. Upgrading
5. Job evaluation
6. Personal efficiency
7. Turnover and absenteeism
8. Machinery efficiency
9. Reprimanding workers
10. Working conditions

***A loom crankshaft** is prepared for metallizing by rough threading at Covington Mills, Covington, Ga. The tearing action of the tool used provides an irregular surface excellent for bonding.*



***The built-up crankshaft** is ready to be machined down to original size. Many types of metal for spray-coating are available to give various degrees of hardness and other properties.*

METALLIZING Useful In Textile Machine Shop



***A worn spindle** (right) has been metallized, the tip renewed, and the shaft brought back to its original taper by subsequent machining.*

***HIGHLIGHTS:** Two southern mills use sprayed molten metal to recondition parts at fraction of replacement cost — Surface preparation most important step — Metals with various properties may be used — Process useful for rebuilding textile machine parts or for application of corrosion-resistant coating.*

By ROY CAMPBELL

METALLIZING is being used in two Georgia cotton mills for reconditioning of worn or damaged textile parts at a fraction of their original cost and with minimum loss of time. These and many other concerns which previously depended upon the welding process for building up worn parts and turned them down to the original size have found that metallizing is faster, less expensive, and longer lasting.

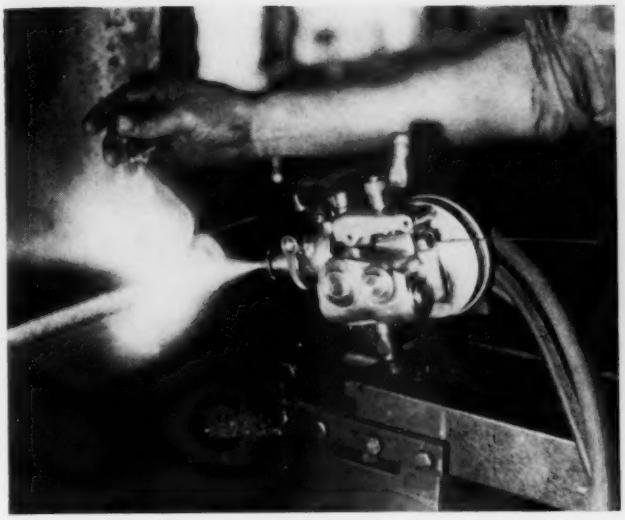
In Walton Cotton Mill Co., Monroe, Ga., and Covington Mills, Covington, Ga., metallizing is at work in building up worn spindles, drawing rolls, sand rolls, and loom crankshafts. In addition, it is used for size-pump impeller shafts, spinning-frame rolls, line shaftings, loom shafts, and for squeeze-roll shafts. It has been able to promote efficient maintenance and repair, and has established itself firmly in the textile industry. Its use will increase as greater knowledge of its advantages is disseminated.

For the textile maintenance engineer, the use of sprayed metal can be divided into two classes. First, there is the normal rebuilding and salvaging of worn parts; second, the application of a non-corrosive metal over a base metal protects it from atmospheric attack or from chemical reagents. In all cases, before the metal is sprayed, it is necessary that a preliminary preparation be performed in order to clean and roughen the surface. This is required to insure that the coating will adhere permanently after it has been sprayed on.

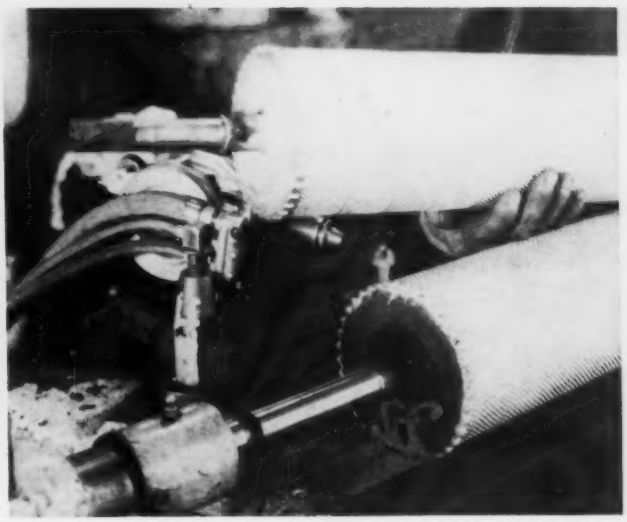
Improper and insufficient surface preparation is responsible for more failures than all other faults combined. The surface must be made sufficiently rough to provide anchorage for the sprayed metal; to permit it to lock and key around the pores and crevices in the surface to produce a permanent adhesive bond.

SURFACE PREPARATION. There are three main methods of surface preparation of interest to textile engineers: grit blasting, rough threading, and electric bonding. The method selected will depend to a considerable extent upon the size and shape of the part to be metallized.

Grit blasting is generally used for



***Spray metallizing** is used for restoration of a loom roll at Walton Cotton Mill Co., Monroe, Ga. The roll is revolved in the field of the metallizing spray gun.*



***A take up roll** restored by metallizing at Covington Mills is compared with a roll built up by the welding method formerly used (top). The metallizing method required less than half the time.*

the preparation of flat surfaces and for large irregularly shaped parts. A No. 15 or No. 20 angular steel grit impelled by 80 to 100 lb. of air pressure will assure sufficient roughness for a satisfactory bond. The abrasive must be sharp to produce the tearing action necessary to form the sort of surface which will grasp the little particles of sprayed metal and hold them tightly. The steel grit should be air-cleaned frequently to remove the dust and fine particles which may remain embedded in the surface of the metal.

For the preparation of machine elements and small circular parts that may be mounted and rotated in a lathe, the accepted method used is that of rough threading. In this method, the tool is set to tear rather than cut a clean thread. This tearing action of the tool provides thousands of small surface irregularities around which the sprayed metal can impinge and thus bond firmly.

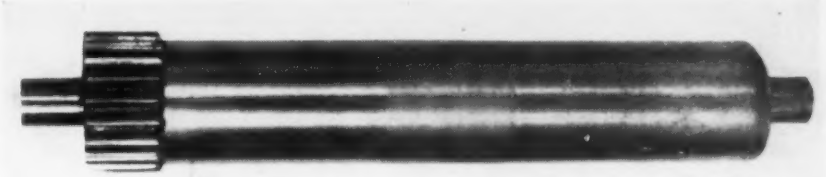
It is important that the thread shall have well-torn sides with many fissures. The successful use of the threading method requires proper dressing of the cutting tool and correct selection of threads per inch. This selection will depend upon the base and the diameter of the piece.

The third method of surface preparation prior to metallizing is the electric bonding method. This is comparatively new in application, but it may supplant both grit blasting and rough threading in many jobs. The tool used is very similar to that of an ordinary arc-welding torch. A nickel-iron electrode is rubbed across the surface to be sprayed. Small particles of the electrode are fused into the surface and produce a roughened crater-like effect which provides a large number of small irregularities to which the subsequently applied metal coating can adhere. The heat generated by the electric-bonding process is dissipated so rapidly into the remainder of the part being prepared that the temper of that part is not affected.

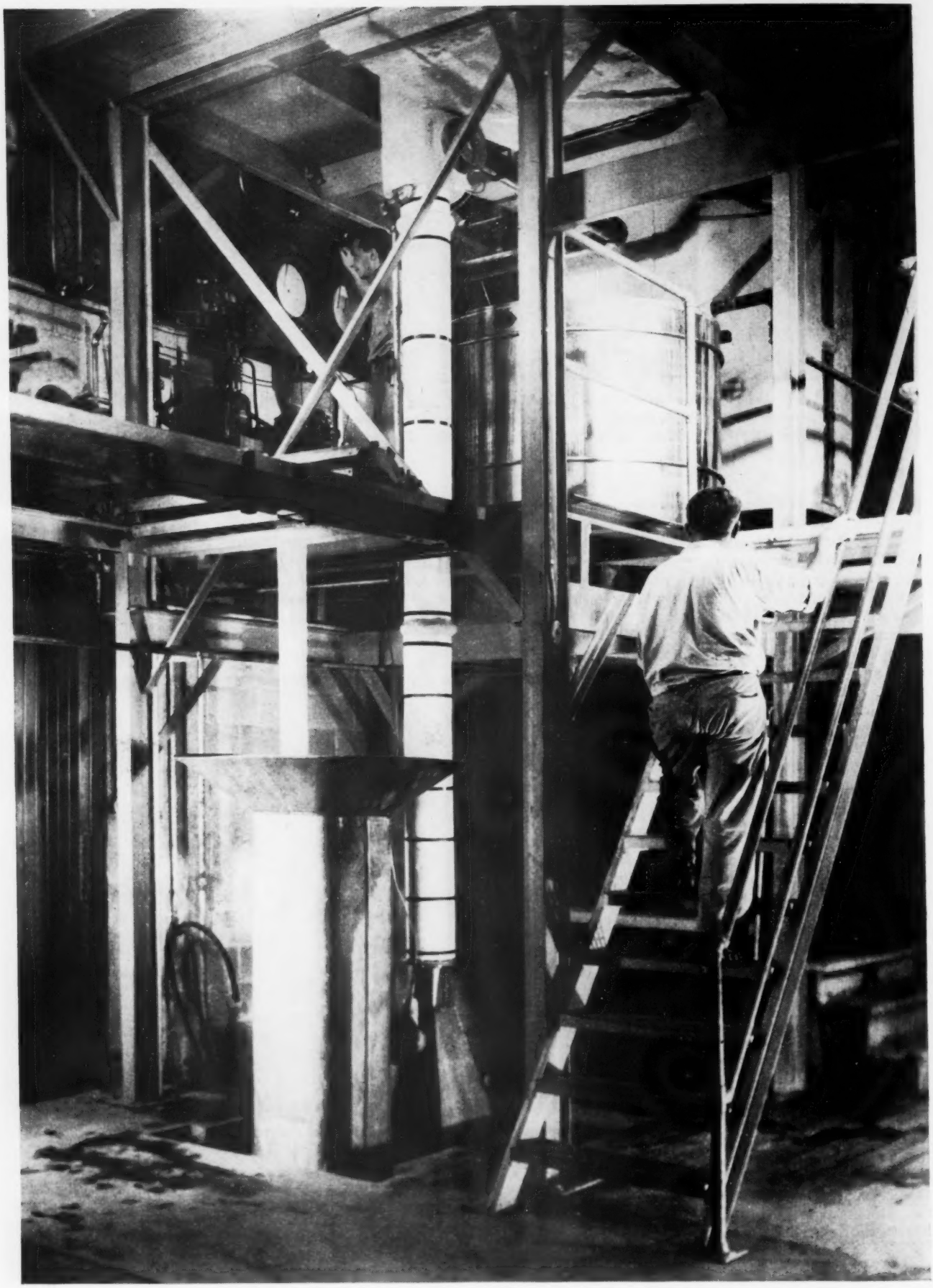
Occasionally, special bonding methods are employed. A shaft or a flat surface may be cold tinned before the application of spray-on tin, lead, zinc, or bronze coatings. Again, air chippers have been successfully employed to prepare a flat surface to receive sprayed steel.

(Continued on page 232)

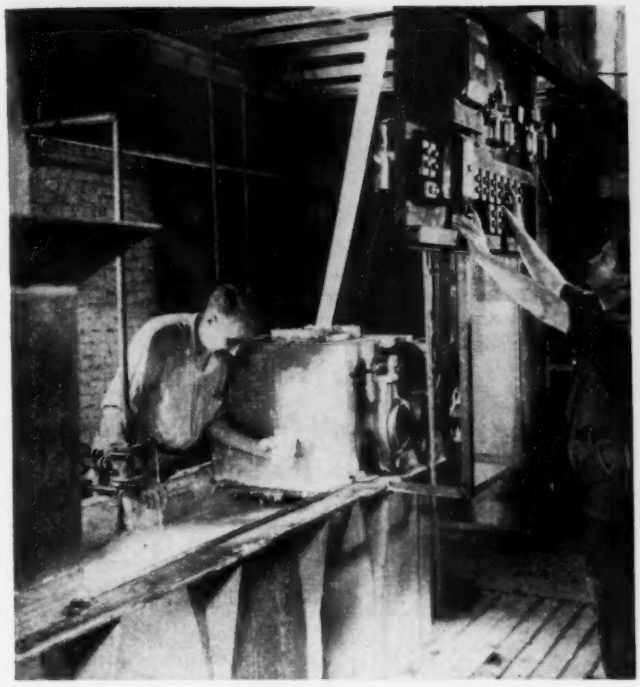
***Loom gears are reconditioned** at a fraction of replacement cost in a southern textile mill.*



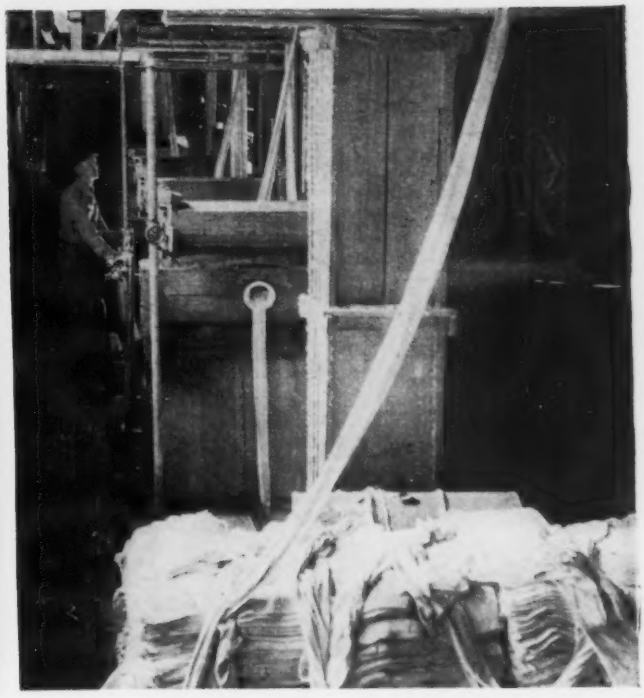
***Worn drawing rolls** may be restored to original size and condition by metallizing and machining.*



***To prevent undue tension** on the knit fabric which might cause stretching and distortion, a single-leg heater tube preceded by a small J-box replaced Du Pont's conventional double-leg heater tube. The peroxide head tank is located on the platform in front of the J-box. Bristol temperature control and recording instruments to regulate J-box temperatures are located on the upper wall.*



***Individual control** over each unit of the range is exerted by the control board at the right. Norman High, bleachery foreman, is removing a test sample of the alkaline peroxide bleach solution from the Rodney Hunt stainless-steel saturator.*



***A continuous string** of gray cloth which has not been pretreated is started into the system. In about 1½ hr. it emerges as fully bleached white cloth ready for drying and finishing. The 4-compartment washers were designed by the Spring City plant.*

KNIT GOODS
Bleached Continuously

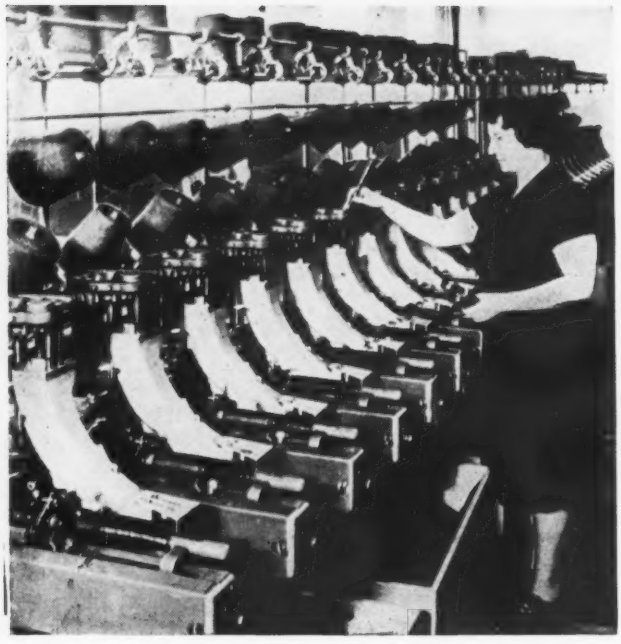
***HIGHLIGHTS:** Du Pont range at Spring City Bleachery handles knit fabrics at 160 yd. per min.—Single-stage process produces whites comparable to kier method—Precautions prevent stretching and distortion of fabric.*

By WILLIAM A. NEWELL, *Assistant Editor, TEXTILE WORLD*

CONTINUOUS BLEACHING of knit goods to produce hand, stretch, and whiteness comparable to kier-bleached goods is the result of a recent Du Pont peroxide-bleaching installation at Spring City Bleach and Dye Works, Inc., Spring City, Pa.

Goods to be bleached are processed without pretreatment through a one-stage range consisting of washer, alkaline-peroxide saturator, heater tube and J-box, and washer. To avoid undue tension on the goods passing through the heater tube, a single-leg tube preceded by a small J-box has replaced the usual double heater tube. J-box temperature is at present about 206° F. The washers used are 4-compartment units designed by the Spring City plant. Knit goods averaging 4 yd. per lb. are processed continuously at the rate of 160 yd. per min. with a J-box storage of 1 hr., 15 min. While the installation has not been in operation long enough for complete data to be obtained, it is estimated that the cost compares favorably with the kier-bleaching method. Precautions taken in the range design to prevent stretching and distortion have resulted in product quality comparable to the kier-bleached fabric. With the system it is possible to handle a wide variety of knit goods continuously with only minor modifications. The total elapsed time, from gray to bleached cloth, is about 1¼ hr. instead of overnight; and control of quality is more uniform than with batch processing, it is reported by Spring City authorities.

***Knit fabric leaving the J-box** is inspected by a Spring City workman. A white comparable to kier-bleached fabric is obtained by the single-stage process without pretreatment.*



Spindle-assignment bases for Whitin-Schweiter winders differ from those for other winders.

Formula for Spooler's Task

Based on the procedure and spooler's job analysis set forth in the accompanying text, the following steps and formula can be followed for computing the spooler's job load.

1. Make a job analysis to determine job elements.
2. Make a time study to determine time required to perform various elements:
   a. Time required to get and place empty quill in magazine (E)
   b. Time required to replace cone (R)
   c. Time required to tie up yarn break (P)
3. Determine:
   a. Yd. per quill (Q)
   b. Yd. per cone (C)
   c. Machine speed (S)
   d. Time to eject full quill and transfer empty quill (T)
   e. Breaks per hr. (B)
   f. Time allowed for spooler's personal needs and fatigue (usually 15%, or 9 min. per hr.) (N)

Then:

$$\text{Spoolers task} = \frac{60-N}{\left(\frac{60}{\frac{Q}{S}+T}\times E\right)+\left(\frac{60}{\frac{C}{S}+\frac{T\times C}{Q}}\times R\right)+\left(B\times P\right)}$$

Charts Aid Computing SPOOLER'S TASK

HIGHLIGHTS: *Charts based on job analysis and time study provide quick method of computing production and job load of woolen filling winder—Whitin-Schweiter bobbin winder used in example cited—Filling production scheduled accurately—Enables more efficient use of equipment and operators.*

By RUDOLPH LEPPLA, *Supervising Standards Engineer, Forstmann Woolen Co.*

To supply the weave room with its daily requirements of many varieties of filling yarn presents a problem in production scheduling and in the computation of correct spindle tasks for the spoolers.

To solve this problem, the spooling operation was thoroughly analyzed and time-studied. From the data obtained, charts were constructed from which can be determined the number of spindles that should be placed in operation for any given amount of filling yarn and the number of spindles that should be assigned to a spooler to obtain a correct task for a variety of yarn.

Because methods and operations often vary from mill to mill, these charts should be considered only as examples.

In one mill, filling is respooled on Whitin-Schweiter automatic filling bobbin winders from cones. The work performed by the spoolers is:

1. Get and place empty quills in magazine.
2. Remove empty cone from creel, pick up full cone from rear of machine and place on creel, thread yarn through tension and guides, attach yarn to quill,

Table I—Average Breaks Found in Tests

Yarn	Count	Average Breaks	Breaks Per Spindle Per Hour
Single Wool	1 run to 4.5	28	28/30 = 0.93 or 1
	5 run to 7.5	38	38/30 = 1.27 or 1¼
2-Ply Wool	2/3 run to 2/7.5	13	13/30 = 0.43 or ½
Single Worsted	1/11 to 1/21	7	7/30 = 0.23 or ¼
	1/22 to 1/28	15	15/30 = 0.50 or ½
	1/29 to 1/43	27	27/30 = 0.90 or 1
	1/44 to 1/58	36	36/30 = 1.20 or 1¼
2-Ply Worsted	2/11 to 2/28	6	6/30 = 0.20 or ¼
	2/29 to 2/58	13	13/30 = 0.43 or ½

Table II—Spindle Assignment Data

Yarn	A Pounds required	B Pounds per spindle per 8 hr. (Amt. from chart x 8)	C Spindles to be placed in operation to give A (A ÷ B)	D Each spindle percent of task (from chart)	E % of C task (C x D)
1-run woolen...	275	69.0	4	11.1	44.4
2/3-run woolen...	375	50.1	8	7.7	61.6
1/11 worsted.....	190	21.6	9	3.2	28.8
2/11 worsted.....	200	40.5	5	5.9	29.5

and start spindle. (Cones are allowed to run out because the yarn does not transfer from one cone to another without breaking.)

3. Tie up yarn breaks.

Time studies showed that the following times are required to perform the above elements by an operator working at normal speed:

0.03 min. to get and place empty quill in magazine.
0.30 min. to replace cone.
0.26 min. to tie up yarn break.

In addition, it was necessary to establish the number of yarn breaks per spindle per hour and, also, the time required by the machine to eject a full quill and transfer an empty one.

BREAKS. To determine yarn breaks per spindle per hour 30 spindles were observed running continuously for 1 hr. This study was repeated numerous times for various yarn counts until sufficient data had been collected to obtain valid averages. These averages are shown in Table I. The time required by the machine to eject a full quill and transfer an empty one was found to be 0.07 min. This action is fully automatic and does not require any attention from the spooler. It was necessary to determine this time, because during it the quill was not winding and consequently no filling was produced. (This will be apparent when we compute running time per quill and cone, and production.)

Before the charts could be prepared, two additional items had to be established:

1. Machine speed in yards per minute.
2. Length of yarn (in yards) wound on a quill and length of yarn wound on a cone.

The machine speed was determined by noting the time required to wind one quill. The yarn from this quill was then reeled off and measured. Dividing the length by the time required to wind the quill gave us the machine speed in yards per minute. This procedure was repeated numerous times for various yarn counts, and the results averaged. This average was 350 yd. per min. Since the minimum and maximum was less than 5% (plus or minus), 350 yd. per min. was used for all yarn counts.

WEIGHT. To establish the weight of yarn on a cone, numerous supply bobbins of uniform size but of different yarn counts were weighed and the average weight was 2.4 oz. Again, the minimum and maximum weight was close enough to the average to allow the use of 2.4 oz. as the standard weight. A standard of 20 supply bobbins per cone was then set, which gave 48 oz. per cone. Similarly, it was found that the weight of yarn on a quill was 1.2 oz. These weights were then converted into lengths for any given yarn count. For example, a quill containing 1.2 oz. of 1-run woolen yarn will contain:

$$1.2 \text{ oz.} \times \frac{1 \text{ run} \times 1{,}600 \text{ yd.}}{16 \text{ oz.}} = 120 \text{ yd. per quill.}$$

Also, a cone of 20 supply tubes, each containing 2.4 oz. of yarn, will weigh:

$2.4 \text{ oz.} \times 20 = 48 \text{ oz.}$ and

$$48 \text{ oz.} \times \frac{1 \text{ run} \times 1{,}600 \text{ yd.}}{16 \text{ oz.}} = 4{,}800 \text{ yd. per cone.}$$

(NOTE: For 1/11 worsted yarn, the calculation would be as follows:

$$1.2 \text{ oz.} \times \frac{11 \times 560 \text{ yd.}}{16 \text{ oz.}} = 462 \text{ yd. per quill}$$

$$48 \text{ oz.} \times \frac{11 \times 560 \text{ yd.}}{16 \text{ oz.}} = 18{,}480 \text{ yd. per cone)}$$

(Continued on page 244)

JOB LOAD AND PRODUCTION CHARTS

SINGLE WOOL YARNS

Yarn	Total Pounds Per Hour	Pounds Per Spindle Per Hour	Producing Spindles	Task	Each Spindle—% Of Producing Spindles
1.0 run	77.1 lb.	8.63 lb.	8.93	9	11.1%
1.5	77.5	6.25	12.41	13	7.7
2.0	76.8	4.87	15.76	16	6.3
2.5	75.9	4.00	18.98	19	5.3
3.0	75.0	3.39	22.09	23	4.3
3.5	73.9	2.94	25.12	26	3.8
4.0	72.9	2.60	28.02	29	3.4
4.5	71.8	2.33	30.82	31	3.2
5.0	67.6	2.10	32.18	33	3.0
5.5	66.3	1.92	34.53	35	2.9
6.0	65.1	1.77	36.85	37	2.7
6.5	64.1	1.64	39.14	40	2.5
7.0	62.9	1.53	41.23	42	2.4
7.5	60.8	1.42	42.68	43	2.3

2-PLY WOOL YARNS

Yarn	Total Pounds Per Hour	Pounds Per Spindle Per Hour	Producing Spindles	Task	Each Spindle—% Of Producing Spindles
2/3.0 run	80.1 lb.	6.26 lb.	12.80	13	7.7%
2/3.5	80.2	5.49	14.60	15	6.7
2/4.0	80.4	4.70	16.42	17	5.9
2/4.5	80.0	4.40	18.17	19	5.3
2/5.0	80.1	4.02	19.95	20	5.0
2/5.5	80.0	3.68	21.75	22	4.5
2/6.0	79.6	3.40	23.41	24	4.2
2/6.5	79.1	3.16	25.00	25	4.0
2/7.0	79.3	2.95	26.84	27	3.7
2/7.5	78.5	2.76	28.40	29	3.4

SINGLE WORSTED YARNS

Yarn	Total Pounds Per Hour	Pounds Per Spindle Per Hour	Producing Spindles	Task	Each Spindle—% of Producing Spindles
1/11	81.6 lb.	2.70 lb.	30.18	31	3.2
1/12	81.5	2.49	32.73	33	3.0
1/13	81.4	2.31	35.17	36	2.8
1/14	81.0	2.16	37.58	38	2.6
1/15	80.9	2.02	40.06	41	2.4
1/16	80.6	1.90	42.46	43	2.3
1/17	80.5	1.79	44.93	45	2.2
1/18	80.2	1.70	47.31	48	2.1
1/19	80.0	1.61	49.66	50	2.0
1/20	79.6	1.53	51.93	52	1.9
1/21	79.4	1.46	54.26	55	1.8
1/22	74.4	1.40	53.24	54	1.9
1/23	73.9	1.34	55.14	56	1.8
1/24	73.5	1.29	57.17	58	1.7

2-PLY WORSTED YARNS

Yarn	Total Pounds Per Hour	Pounds Per Spindle Per Hour	Producing Spindles	Task	Each Spindle—% of Producing Spindles
2/11	81.8 lb.	5.06 lb.	16.19	17	5.9%
2/12	82.6	4.73	17.47	18	5.6
2/13	81.9	4.37	18.75	19	5.3
2/14	82.3	4.10	20.08	21	4.8
2/15	82.1	3.85	21.34	22	4.5
2/16	81.6	3.62	22.57	23	4.3
2/17	82.1	3.43	23.94	24	4.2
2/18	81.6	3.25	25.12	26	3.8
2/19	82.0	3.10	26.42	27	3.7
2/20	81.9	2.95	27.72	28	3.6
2/21	81.7	2.82	28.98	29	3.4
2/22	81.6	2.70	30.18	31	3.2
2/23	81.6	2.59	31.48	32	3.1
2/24	81.5	2.49	32.73	33	3.0

***Data obtained** as explained in the accompanying text and entered in charts are extremely useful to supervisors in rapidly and accurately determining spooler tasks and spindles to be allocated to various yarn numbers.*

SOME CAUSES OF POOR SPINNING

Pre-Spinning Causes	
Uneven roving, with light and heavy cross-sections	Slack-twisted roving
Hard-twisted roving, which resists drafting action	Light roving, indicating singling
	Light roving, indicating wrong stock
	Damaged roving package
	Foreign matter in roving

Spinning Causes	
Scored or bruised top rolls	Worn bobbins
Chipped front-roll bosses	Worn bolsters
Off-center thread guide	Dry bolsters
Off-center spindle	Careless cleaning
Worn ring	Dry top rolls
Wrong traveler	Slack tape
Excessive speed of spindle or front roll	Acute angle
Excessive draft	Frictional tempering of traveler on new ring
Insufficient twist	Insufficient leverage on roll
Low or high humidity	Excessive twist for staple length
Light yarn	

Instruction to spinner should precede ends-down testing

ENDS-DOWN TESTS
Reveal Spinning Troubles

HIGHLIGHTS: *Over-all efficiency of mill and quality of product improved by careful end-break studies in spinning—5 to 35 ends down per thousand spindle hours considered good spinning results; 36 to 49 fair to poor spinning; above 50 extremely poor spinning.*

By F. H. GUNTHER and MARCUS GROSS

CAUSES OF POOR SPINNING are so numerous and variable that the ingenuity of the overseer is often taxed to the limit in tracing and overcoming them. He measures the results of poor spinning as revealed by end breaks and then attempts to list and trace all possible causes to their respective points of origin. These points may be any or all processing details between the feed apron on the bale breaker and the spindle on the spinning frame. The first function, a measure of end breaks, indicates when something is wrong; the second function, an analysis of end breaks, frequently suggests what is wrong and where to find it.

This expanded scope of end-break analysis arises from the realization that the spinning room, in relation to yarn-manufacturing departments, occupies the same position as the weave room in its relation to warp-preparatory departments: its product is in a finished condition as far as inherent quality is concerned. When this relationship is understood, a study of end breaks assumes its proper importance and becomes a means of improving and maintaining the efficiency and quality not only of the spinning room but also of the entire mill.

Some mills coordinate end-break analysis and other production checks under a central department, but other mills do not always find it possible to centralize such work. Where it is necessary for the overseer to undertake the analysis program, he should have the support of the mill organization in distributing the results of the studies to other department heads so that as full a use as possible may be made of the data.

GOAL IS EFFICIENCY. Based on analyses, some mills create a definite standard of so many ends down per thousand spindle hours and use this figure in two ways. First, the figure is a goal or a standard of processing excellence which the yarn-manufacturing overseers desire to maintain or surpass. An excess of end breaks automatically raises costs, reduces quality; and the more end breaks, the more stops in spinning, spooling, warping, slashing, and weaving. Second, the standard is used as a basis for calculating the work loads of the spinners.

Some causes of poor spinning are shown in the accompanying tabulation. They indicate how far one mill carried its study of end-breaks analyses in a program to effect as many over-all benefits as possible. The factors of grade, staple, and character of the cotton were recognized by the mill but are not listed for the reason that they are not likely to be comparable with the characteristics of another mill's raw cotton.

However, for the mill which processes a large variety of cotton grades or mixes, end-break analysis proves of greatest value in testing the weak points of the mill's technical armor. The processing troubles that accompany special mixes, particularly when low-grade cotton or waste are specified by an economy-minded customer, are many. Without some knowledge and control over the running characteristics of such orders, the mill could easily spend more money per pound

in processing an inferior grade than it could realize from the sale.

MEASURE AND ANALYZE. To measure end breaks and discover their possible causes, one mill uses the testing chart shown. Usually the test is made on five frames running a given yarn count, although as many frames and yarn counts may be checked simultaneously as the skill and speed of the tester permit. The results must be tallied by frame and by yarn count.

It is interesting to note what this mill considers as a good ends-down record. From five to 35 ends down per thousand spindle hours is considered good spinning results and 35 is the mill's maximum acceptable standard. From 36 to 49 ends down per thousand spindle hours is considered fair to poor spinning results. When the tester tally reaches this range, he is required to investigate all possible causes. A record of 50 or more ends down per thousand spindle hours is considered extremely poor spinning, and all factors or causes are checked at once so that the responsible conditions may be corrected.

The form illustrated lists some causes of poor spinning in addition to those already pointed out. Even a combination of both lists will not include all such causes. It should be noted that the sample test chart is merely typical and not necessarily applicable to any specific yarn count.

SPINNER'S STAKE. In carrying out the actual test, the tester should assign a spinner to the frames under test and clear the area of all disinterested parties. He fills in the top headings of the chart, reserving the wet and dry bulb thermometer recordings until one half of the time for the test has elapsed.

The tester instructs the spinner in her duties during the test. Among other things, he tells her that ends should not be pieced up until they have been inspected for cause. There must also be time for the tester to mark the report and to chalk mark the wooden top-clearer above the fallen end. The latter is extremely important. If an unclassified end comes down several times, some mechanical fault in spinning is indicated, in which case the tester has authority to call the section man in for immediate repair. If no mechanical fault is found, the tester removes the roving and yarn for size tests and otherwise follows up the investigation until some satisfactory solution is found.

The phase of the tester's procedure involving the chalk-marked identification of faulty ends usually makes a tremendous impression on the spinner and sells her on the desirability of future tests, since "ends that just won't run" may cause her a lot of extra steps during an 8-hr. day.

At the end of a 2-hr. test, the total ends down per hour are tallied by the tester who then calculates the average ends down per frame per hour. Using a constant for a 200-spindle frame (1,000 ÷ 200 = 5), he figures the ends down per thousand spindle hours. For example, the average number of ends down on Frame No. 23 was 5.5. Multiplying 5.5 by the constant, 5, gives 27.5 ends down per thousand spindle hours.

MAGNOLIA MANUFACTURING COMPANY

ENDS-BREAKAGE IN SPINNING

Observer R. Smith Hr. obs. 2 Date 10 · 10 · 47

Spinner M. Jones Spdls. obs. 1000 Dept. Spinning

10 Sides @ 100 Spindles Dry 80° Wet 70° Rel. hum. 60% Yarn 37s FILLING

CAUSES	Fr. no. 23	Fr. no. 24	Fr. no. 25	Fr. no. 26	Fr. no. 27	CODE
Roving run out		II				(R) Steel roll lap
Roving broken back					III	(T) Top roll lap
Singling						(H) Hard end
Bad roving			II(4)			(S) Slub
Plugged apron	I	II				
Lint in trumpet	I			II	I	
Roving outside trumpet	I					
Top roll bad					II	
Lint on rolls			II(J)			
Top-clearer waste		II				
Bad spindle	I					
Traveler off		II		IIII	I	
Lint on traveler						
Bad bobbin					I	SUMMARY
Bobbin riding high						% ends-down 2.85%
Flying lint	II(T)			II		Average ends-down 28.5
Bad ring	I					Retest date 1/31/47
Ends whipping				I	I	
Adjacent T. R. lap						
Adjacent S. R. lap						
Scavenger R. lap						CHECK
Unclassified - top	III	II		III	I	Twist
Unclassified - middle		II	III			Size - yarn ✓
Unclassified - bottom	I	I	I	II	I	Size - roving ✓
Total ends-down	II	13	8	14	II	Travelers ✓
Average per hr.	5.5	6.5	4	7	5.5	Spindle set
Constant	5	5	5	5	5	Ring condition
Ends per M. sp. per hr.						Rolls
Spindles per frame	200	200	200	200	200	Guides
Make						Speeds

REMARKS:

No. 23 - 27.5
No. 24 - 32.5
No. 25 - 20.
No. 26 - 35.
No. 27 - 27.5
5 | 142.5 | 28.5

Test - Good

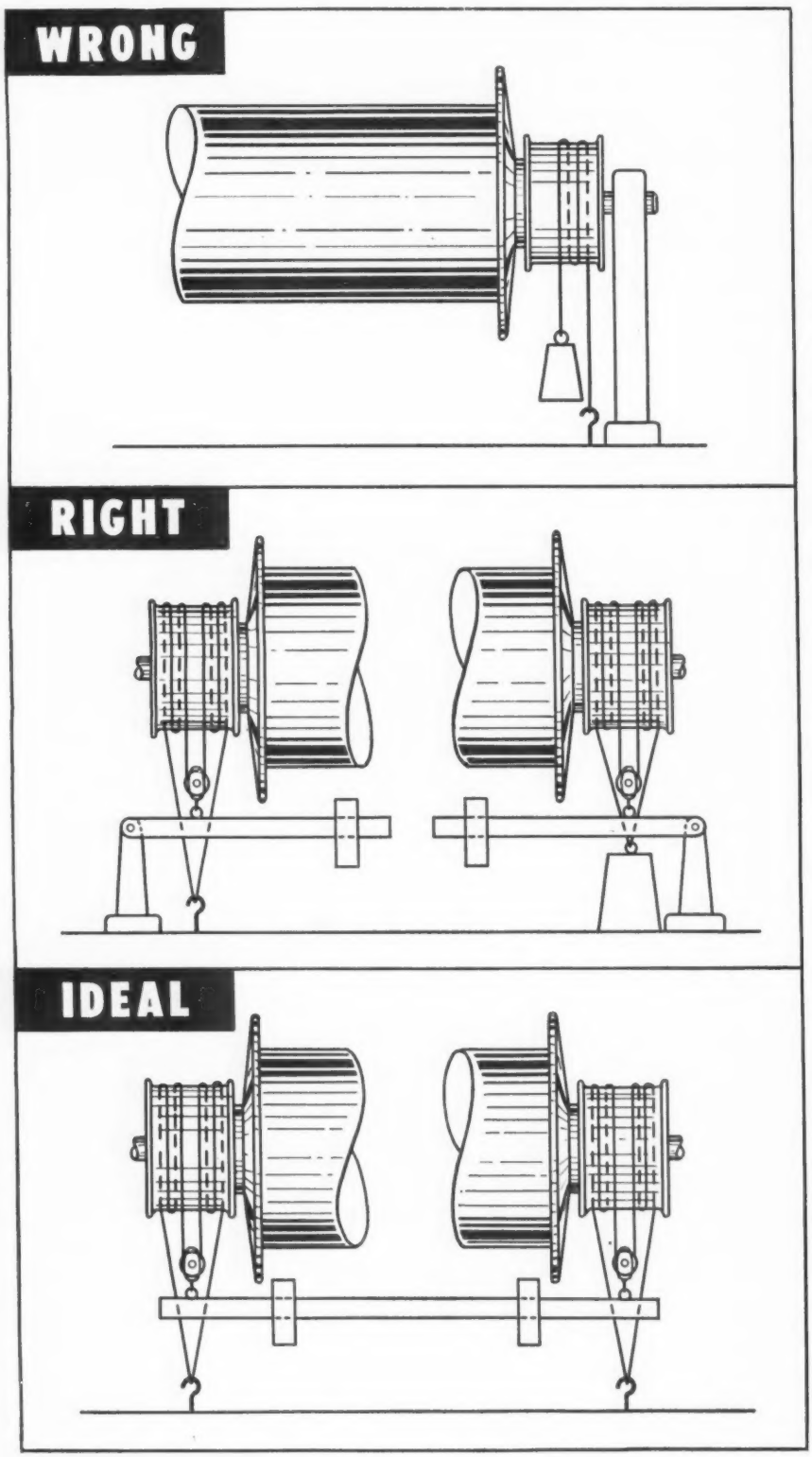
W. Brown Tester

J. White Checker

M. Kelly Overseer

Mill form suggests method for checking spinning results.

Careful Loom Adjustment Aids RAYON WEAVING



***Decidedly undesirable** for weaving any type of rayon fabric is the first warp let-off at top. The center arrangement is most suitable for medium and heavyweight fabric. The lower let-off will be found ideal for weaving lightweight cloths.*

***HIGHLIGHTS:** Moderation required in handling filament rayon to prevent injury—Better filling handling can increase efficiency—Picking force should be adjusted to practical minimum — Desirable reed characteristics listed.*

GENERAL WEAVING CONCEPTS, as applied to worsted, woolen, or cotton, need to be modified but little to answer the requirements of spun rayon, whether of the 100% rayon or blended types. In all cases, one deals with hairy yarns, obviously uneven in comparison to continuous-filament yarns. It does not seem to matter overly whether a little abrasion takes place here or there, or whether tensions are not finely controlled. Of course, the net result of such conditions, as a whole, is damaging; but the uneven appearance of the cloth (when viewed from a continuous-filament-fabric-man standpoint), the hazy atmosphere imparted by any spun thread, all tend to minimize the visibility of slight damages.

On the other hand, continuous-filament rayon ranks extremely high as to evenness and clarity of form in comparison to spun yarns. They are not merely utilitarian, but also showy. Their very characteristics demand that they be handled with more care and a better understanding of their potentialities. They are so nearly perfect that even small, permanent blemishes that may result from misguided handling stand out and become noticeable.

The trade recognizes that with proper attention, most of the blemishes can be avoided and the "know how" to weave acceptable goods is no longer a matter of choice.

Modern plain and box rayon looms are being operated at efficiencies ranging from 90 to 95%, and time studies indicate that most of the interruptions are attributable to faulty filling performance. A well-sized warp of continuous-filament rayon will run with but a few breaks daily, and it is beyond question that future improvements in efficiency will largely come from better filling handling.

FILLING DEFECTS. Faulty transfers and broken picks, leading to loom stoppages, are traceable to a multitude of

reasons. Soiled and bruised filling, also shiners, constitute another type of defects which, while not affecting the operation of the loom, are having a most adverse influence on cloth perfection.

Soiled filling, though simple to control, is a rather frequently encountered defect; and the unfortunate part is that a box-stained rayon filling will seldom wash clean. The same thing is true of rayon stained by hand perspiration, for no effort on the part of the dyer appears capable of removing such stains. Once rayon is soiled, it is most difficult to wash it clean unless means injurious to the cloth are used. The expedient often applied to salvage merchandise thus affected is to dye it in medium or dark shades.

The true solution is found in meticulous cleanliness of the boxes, in the providing of powder bags so that operators may dry their hands. The ultimate and modern answer is to fix the looms with utmost care and to have such perfect warps that stoppages are held to a minimum.

Some of the main precautions in the care of boxes and magazines are listed in the accompanying panel.

PICK MOTION. The picking motion, or "heart of the loom," is generally overtaxed. This is quite understandable, for too much pick is less troublesome than not enough, particularly when dealing with fabrics of the more-rugged type.

The sensitive nature of continuous-filament rayon, however, calls for a somewhat revised attitude in this respect. Otherwise, the apparent good running of the loom is too often achieved at the expense of cloth perfection.

One of the cardinal approaches to successful rayon weaving is to adjust the picking motion to the practical minimum. There should be just enough pick for the shuttle to get across and to box as gently as the loom speed permits. Too much pick renders the shuttle checking much more arduous, increases the wear on the shuttle and the pickers, leads to rebounding shuttles, may cause rough cloth, is often responsible for sloughing-off cops, and does not facilitate accurate boxing.

The clear shed made possible by a rayon warp provides a free smooth passage and any unproportional effort to press the shuttle onward wastes power, injures fabric and machinery.

REEDS. The accuracy and uniformity of the reed build, its general condition, smoothness of the dent wire, and proper maintenance—all play an unusual part in the successful weaving of rayon goods.

PRECAUTIONS

The following points should be observed in the care of boxes and magazines:

1. Smooth all rough places and edges. All leather lining must be in good condition. If the binder is worn, replace with a new one or recover. Shuttle points must be exactly in center of picker-stick slot in the lay end. Set the binder eccentric stud to the correct position.

2. If the picker is not in good condition, renew it. Adjust the packing in back of the picker so that the shuttle is in correct position for the transfer. The shuttle should be set so that when the new bobbin is transferred the first and second rings (near the butt end) of the new bobbin straddle the first ring of the old bobbin.

3. Lower the automatic transfer hammer sufficiently to insert bobbins correctly in the new grip. The hammer should not roll the bobbin in on either side of the shuttle, nor push the nose of the quill down before the butt. Line up the battery level with the lay. Use only quills in good condition. Have magazine hands fill magazines correctly.

1. *Type.* Pitch-band reeds, giving full satisfaction on fabrics made of spun threads, are not advocated for continuous-filament rayon. An all-metal reed, (often referred to as a silk reed), is far more desirable for the higher-precision job expected in rayon constructions. The build of the silk reed is more substantial and more capable of greater uniformity, therefore longer service and better performance may be expected. Variations in sley may well be caused by lame reeds and weak dents. This condition, appearing as warp streaks in the finished goods, is often wrongly blamed on the yarn.

2. *Dent Wire.* The smoothness of the dent wire commands special attention. Highly polished stainless steel appears to be the most desirable metal at the moment. Its high polish, rust resistance, freedom from flaking (as may occur with hard-metal-plated dent wire), offer real comfort to the rayon weaver. Chafed viscose and acetate ends, originating from rough, nicked, or rusted reeds, create blemishes which can be prevented if judicious selection of dent wire and proper reed maintenance is given reasonable attention. The advantages offered by oval dent wire, allowing a larger clearance to knots at the reed entry and minimizing the warp friction, have been recognized by many rayon weavers.

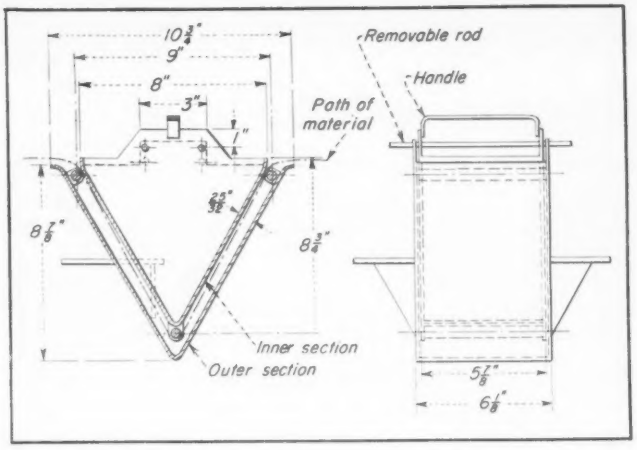
3. *Build.* An average of 45% of the reed space is generally taken up by the dent wire. The remaining 55% provides the required air space for the passage of the warp ends. This proportion has been found safe and quite practical over a period of many years, and one should refrain from using reeds not built reasonably close to such specifications. Too great a reduction in the space allowed to the metal leads to weakness, lameness, and easily damaged dents. Going toward the opposite extreme brings about undue friction. The perfection of rayon fabrics will suffer from excess in either direction.

4. *Count.* To obtain the fullest coverage, rayon is woven with reeds finer than generally employed in the cotton, worsted, or woolen branches. Obviously, the principle is: The finer the reed, the more uniform the warp distribution, and the greater the coverage. Interference with reasonable passage of warp knots is setting the practical limitation to the reed fineness. A 55-dent reed is considered the practical limit for 100 den., a 45 for 300 den.

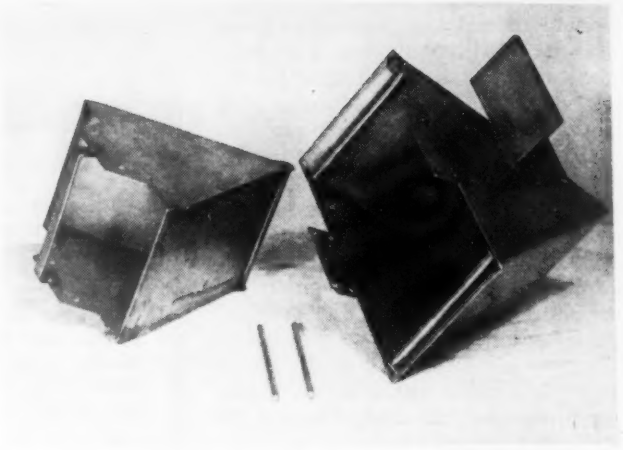
5. *Knots.* The knots referred to above are weavers knots, for a rayon weaver should not consider any other type as acceptable. Deviation from this time-proven practice on continuous filament will soon be reflected by a noticeable increase in hang picks, loss in production, and poor merchandise. Ideal warps should be knotless, for even though there may be enough room in the reed for the knots to go through, some occasionally will be knocked open by the reed contact causing loom stoppages and imperfections. Moreover, soiled knots constitute a serious problem, particularly on acetate-rayon fabrics. During weaving, some sizing ingredients flake off from the warp ends and, together with the

(*Continued on page 202*)

This article is condensed from the forth-coming book RAYON TECHNOLOGY, *Handbook for Mills*, to be published by McGraw-Hill Book Co., 330 W. 42nd St., New York 18, N. Y.



***Cloth to be dyed** is pulled through the passageway created by placing the smaller section of the dyeing unit inside the larger. The units are designed to duplicate plant operating conditions.*



The two sections of the dyeing unit are made of Monel metal. The inner section can be placed in either of two positions by insertion of the steel rods in either set of the holes provided.

Laboratory Machine Gives Data on CONTINUOUS DYEING

***HIGHLIGHTS:** Simplicity and ease of operation of small machine enables laboratory study of continuous dyeing—Plant operating conditions duplicated—Useful for matching, equilibrium studies, effect of salt concentration, and other problems.*

By C. L. ZIMMERMAN, *Research Dept., Calco Chemical Div., American Cyanamid Co.*

With the introduction of new and more rapid methods of continuous dyeing in liquid media at elevated temperatures, such as in the Williams unit, it becomes increasingly desirable to have laboratory apparatus which can be used not only for matching shades but also for exploring variations in dyeing procedures. A laboratory machine has been constructed which is simple in design, easy to operate, and reasonable in cost. This laboratory apparatus is not a small scale model of the Williams unit, but was designed to simulate the conditions of time of immersion and the cloth/dye-bath ratio of this unit, and yet be versatile enough to study variations in the factors which influence continuous dyeing.

The dyeing unit is built in the form of a special pad box which fits onto a laboratory padder, the padder being the means of pulling the cloth through the unit. Any padder to be used with this unit should be equipped with some form of speed control, since longer immersion times are usually required for developing than for padding.

For the test unit shown in the accompanying illustrations, a Butterworth laboratory padder provided with a General Electric Thy-Mo-Trol speed control is used. The speed of this padder can be varied from 1 yd. per

TABLE I

Dye Used	Dye Required for Equilibrium Mg. per Liter
Calcosol Yellow G Dbl. Pst.	133
Calcoloid Gray 2G Dbl. Pdr.	334
Calcoloid Brown BR Dbl. Pdr.	660
Calcoloid Olive R Dbl. Pdr.	1200
Calco Vat Golden Orange 3G Pst.	1400

TABLE II

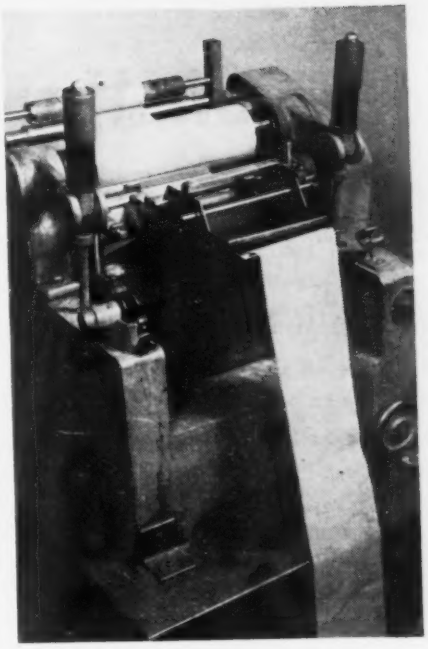
Dye Used	Dye Required for Equilibrium, Mg. per Liter	
	No NaCl in Developing Bath	16 oz. NaCl per gal. in Developing Bath
Calcoloid Brown R Dbl. Pdr.	1500	234
Calcosol Red BN Dbl. Pst.	2000	250
Calco Vat Brill. Violet RK Dbl. Pst.	2000	417

min. to 44 yd. per min. as may be required in tests.

The dyeing unit is made of two monel sections. The inner section is constructed so that it can be filled with water which has been previously heated. This serves to maintain the developing bath at the desired temperature for short runs. For long runs, a thermostatically controlled immersion heater can be inserted in the water and the temperature regulated accordingly. The passageway between the two sections is filled with the developing bath or treating liquid. The cloth to be dyed is pulled through this passageway by the padder, the time of immersion being controlled by the speed of the padder. The two sections of the dyeing unit are built in the shape of an equilateral triangle so the size of the passageway between them can be varied uniformly throughout its entire length. When the removable rods, that hold the two sections together, are placed in lower holes (see photo), the passageway is $\frac{3}{32}$ in. wide and has a volume of 850 ml. When the rods are in upper holes, the passageway is $\frac{9}{32}$ in. wide and has a volume of 1,500 ml.

OPERATION. In operating the unit, a leader, 4 in. wide, is placed across the top of the outer section, and one end of the leader is passed through the squeeze rolls of the padder. By inserting the inner section of the unit, the leader is pushed into place in the passageway between the two sections. The cloth to be dyed is attached to the leader. To approximate the dyeing of vat colors in the Williams unit at 200° F., boiling water is poured into the inner section. The boiling developing bath containing caustic soda, sodium hydrosulphite, and the amount of dye needed for equilibrium is poured into the passageway between the inner and outer sections. The speed control of the padder is adjusted to give a 12-sec. immersion, the padder started; and a length of cloth previously padded with vat dye is pulled through the developing bath. The dyed cloth is then finished in the usual manner.

When the distance between the two sections is $\frac{3}{32}$ in. (using upper holes), the time of immersion set for 12 sec., and a 4-in. wide piece of cloth is used; the conditions are equivalent to a plant-size machine running 50 yd. per min., having 10 yd. of cloth immersed in 60 gal. of developing bath, except for the turbulence and mechanical agitation due to the speed of operation. The results obtained with this laboratory unit have been found to be comparable with those obtained on plant machines.



The dyeing unit is mounted on a laboratory padder which is equipped with a speed-control device.

This laboratory dyeing apparatus has been used for matching shades with direct, vat, and sulphur dyes. It has also been used for solving many application problems, such as finding the amount of caustic soda and hydrosulphite required in dyeing, the effect of varying the immersion time, and the effect of varying the temperature of the developing bath.

EQUILIBRIUM STUDY. One of the major problems in continuous dyeing is the determination of the amount of dye to add to the developing bath at the beginning to maintain an equilibrium such that the dye bleeding off of the padded cloth is just equal to the color dyeing back on the cloth. Some dyes bleed very much, whereas others bleed very little. By using the laboratory unit, information has been obtained concerning the relative amount of bleed-off of vat dyes under one condition of dyeing, and at one concentration. Ten-yard lengths of unmercerized cotton print cloth (80x 80) were padded with aqueous dispersions of vat dyes, using 1 oz. per gal. of double-strength dye or 2 oz. per gal. of single-strength dye. These paddings were developed in the laboratory continuous-dyeing unit at 200° F., using 2 oz. per gal. caustic soda, 2 oz. per gal. sodium hydrosulphite, and adding various amounts of dye to equalize the bleed-off. After dyeing, the concentration of dye in the developing bath was measured with a spectrophotometer. If the concentration of dye in the developing bath had not changed after a 10-yd. length of padded cloth had been developed, this concentration was taken as the equilibrium value. If the concentration of dye in the developing bath had changed, the experiment was repeated using either more or less dye in the developing bath until an equilibrium value was obtained.

If equilibrium data are determined for several dyes in a plant machine through practical runs, the approximate equilibrium data of the other vat dyes should be predictable by referring to a table of relative bleed-off data. This has been true in a number of cases where comparisons have been made with plant trials. A few relative bleed-off values are shown in Table I. A more complete list will be found in the appendix of Calco Technical Bulletin No. 793.

It is known that if sodium chloride is added to the developing bath, far less dye is required to maintain equilibrium. The laboratory dyeing apparatus is well suited to show the effect of salt concentration on the amount of dye needed to keep the bath at equilibrium. Table II shows the change in the relative bleed-off of three representative dyes produced by the addition of 16 oz. per gal. of sodium chloride to the development bath. It is evident that the salt concentration has a marked effect upon the amount of dye necessary for equilibrium.

Cotton warps and piece goods are frequently continuously dyed with direct dyes by passing undyed material through one or more Williams units containing a solution of direct dyes at elevated temperatures. Usually a combination of two or more dyes has to be used to obtain the desired shade. If these dyes have exhaustion rates which differ to any great extent, the feed bath will have to be of a different concentration and proportion than the starting bath to maintain a constant shade. By using the laboratory unit to match the shade, the starting bath can be determined. The composition of the feed bath can be found by determining the amount of each component of the dye mixture actually on the cloth. This may be done in many cases by extracting the dye from the dyed cloth, then making a spectrophotometric curve of the extracted solution, and from this curve determining the concentration of each component.

The simplicity and ease of operation of this apparatus make it possible to study continuous dyeing in the laboratory. It is possible to investigate variations in application with small quantities of dye and fabric and then translate this information reasonably well to plant operation.

Dye Behavoir Varies on CHLORINATED WOOL

HIGHLIGHTS: *Materials shrink-proofed by halogenation react with minor differences—Results differ from those with untreated wool and vary with amount of available chlorine in bath—Chrome colors show least variation—Dye pickup slower and bath-exhaustion lower on treated samples.*

DURING THE RECENT WAR, the Army Quartermaster Corps expended much time and effort to produce non-shrinkable woolens. Primary consideration was focused on all-wool and part-wool hosiery; but plans included most wool articles, particularly blankets, suitings, overcoatings, shirtings, sweaters.

Several methods of rendering wool shrink-resistant were tested. These included halogenation, the Freny-Lipson process, and treatments with melamine-formaldehyde resin, a latex-type resin, or an enzyme. For processing in existing mill equipment with readily available chemicals, halogenation was reported most satisfactory. Consequently, the most extensive practical application was made by this method which usually employs chlorine in the form of calcium or sodium hypochlorite.

It appears likely that future army specifications will call for a shrink-resistant treatment of many wool items, and manufacturers will make increasing use of their war-time experience in adapting the process to civilian goods. Additional information on the dyeing of chlorinated wool is necessary, and for this reason Du Pont's Technical Laboratory has conducted the following investigation:

From "The Technical Bulletin" of E. I. du Pont de Nemours & Co.

TEST PROCEDURE. Three samples of wool-flannel piece goods were separately treated—one with 3%, one with 5%, and one with 7% available chlorine, according to the method recommended by the Army Quartermaster Corps. The treated pieces were dyed in separate baths and together in the same bath with selected acid and chrome colors. Selected direct dyes were applied to chlorinated wool-cotton union material, and the dyed results were compared with those on untreated material. The rates of exhaust of selected acid, Chromacyl, and chrome dyes on chlorinated wool and untreated wool were determined. Fade-Ometer and wash-fastness tests for a few of the acid dyes which were applied to test and control samples were recorded.

The chlorination of wool at various chlorine concentrations, followed by dyeing of samples of the variously treated pieces in one bath, provides a satisfactory method of judging the behavior of individual dyes on unevenly chlorinated wool. Colors which show the least differences between the treated pieces will be the most suitable for practical use.

CONCLUSIONS. The dyeing of each of the treated pieces in separate baths gives approximately similar results to dyeing in a common bath in most cases. Milling acid dyes exhibit the greatest variations.

Wool is discolored to a brownish-yellow shade by the chlorination treatment, becoming more heavily colored as the treatment becomes more severe. This coloration noticeably affects the shade of dyeing obtained and should be taken into consideration when preparing dyeing formulas.

In general, chrome colors show the least dyeing variations between the several chlorination treatments and, consequently, should be suitable for dyeing wool treated in this manner.

Direct dyes applied to chlorinated cotton-wool goods produce similar results as when dyed on untreated material. However, the treated samples show cotton dyed more heavily and wool less heavily than the untreated control sample.

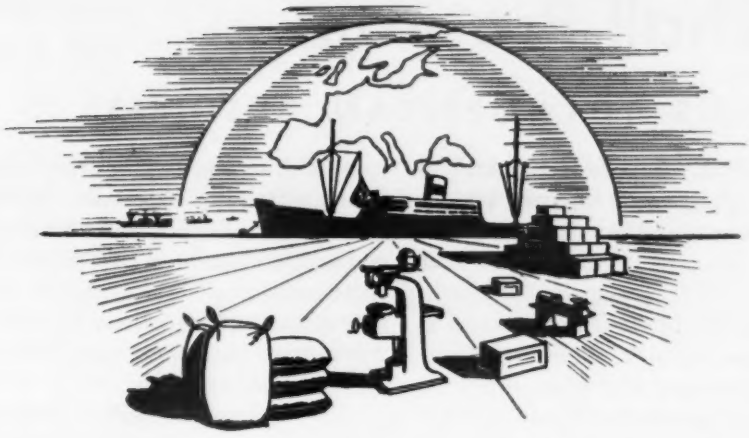
Rate of exhaust tests of various acid, Chromacyl, and chrome dyes show that, in most cases, dye pickup is slower and the final dyebath exhaust is lower on the treated wool. With a few exceptions differences are minor.

Tests of several acid dyes show the light fastness to be about equal and the wash fastness to be poorer on chlorinated samples.

Shade Change and Strength Relationship of Acid Dyes on Chlorinated Versus Untreated Wool

% Dyestuff	Shade Change* 5% Cl	Strength vs. Control					
		Separate dyebath			Same dyebath		
		3% Cl	5% Cl	7% Cl	3% Cl	5% Cl	7% Cl
1.0 Pontacyl Light Yellow GX	3RD	100	100	100	70	120	110
1.0 Du Pont Azo Yellow Conc	3RD	100	100	100	90	105	105
1.0 Du Pont Orange G	4RD	100	100	100	90	100	110
0.5 Du Pont Orange II Conc	4RD	100	100	100	100	100	100
1.0 Pontacyl Carmine 2G Conc. 150%	4Y3D	100	100	100	80	110	110
1.0 Pontacyl Rubine R Extra Conc. 125%	4Y3D	90	100	100	90	105	105
1.0 Pontacyl Violet 4BSN Conc. 125%	4GD	100	100	100	80	110	110
1.0 Du Pont Anthraquinone Iris R	3GD	90	90	90	100	100	100
1.0 Du Pont Anthraquinone Blue BN	2GD	100	100	100	90	100	110
1.0 Du Pont Anthraquinone Green GN	4YD	100	100	100	90	100	110
1.0 Pontacyl Green NV Extra Conc. 200%	3Y	110	110	110	100	110	120
1.0 Du Pont Milling Yellow GN Conc. 250% (Pat.)	3RD	90	100	100	70	110	110
1.0 Du Pont Milling Orange R Conc	3YD	90	100	100	60	110	110
0.5 Du Pont Neutral Brown 2RS	3Y	90	90	90	80	100	120
1.0 Du Pont Milling Red SWB Conc. 125%	4YD	95	95	100	80	100	120
1.0 Pontacyl Violet C4BN	3GD	90	100	100	90	100	110
1.0 Pontacyl Wool Blue GL Conc. 250%	4GD	100	100	100	90	105	105
2.0 Pontacyl Fast Blue SB Conc. 150%	4G2D	50	75	100	70	110	120
1.0 Du Pont Brilliant Milling Green B Conc	3Y	100	100	100	100	100	100
2.0 Pontacyl Blue Black SX	3R	90	100	110	80	100	120
2.0 Pontacyl Fast Black BBN	4G	90	100	100	90	100	110

*R—redder; D—duller; G—greener; Y—yellower.



The Marshall Program

WHAT WILL THE MARSHALL PROGRAM mean to American business? What industries will be called upon to meet the needs, and how great are they likely to be? Will the program carry with it another dose of inflation? Are new bottlenecks being created, or will old ones gain a new lease on life? Where are material shortages likely to fall most heavily?

These and a hundred other questions are in the minds of many American businessmen today. Unfortunately, no final or precise answer can be given to some of them. And it is in the nature of the problem which the Marshall program tackles – that of getting Western Europe on a steady economic foundation – that no precise answers are going to be possible. We have only to view the bad breaks Europe has collected since V-J Day, including the blizzards and drought of this past year, to see how the economic picture can change on short notice.

Nonetheless, the broad dimensions of a Marshall program are sufficiently clear to permit more than a guess about its impact on American business. Both here and abroad committees have been busy for months shaping up Western Europe's rehabilitation needs. At the same time a mine of information has been pulled together about our own output and capacity. The result is a small library of technical reports which carry most of the facts Congress needs for a decision on the immediate problem.

McGraw-Hill's Department of Economics has waded through these reports and queried industry itself to determine the likely effect of the Marshall program on American business. This report carries the main results of their investigation.

One conclusion emerges clear-cut. American business can not provide the assistance Western Europe will need without considerable cost to itself. Such costs are outweighed by the gains that can be expected, economic and social, as well as political. Nevertheless, business will want to anticipate those difficulties that might arise and move to overcome them. The following pages, therefore, highlight both the problems and the benefits that are likely to fall to American business as a result of the Marshall program.

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The Marshall Program

WHAT IT MEANS TO AMERICAN BUSINESS

WESTERN EUROPE'S INDUSTRIAL MACHINE has picked up considerable speed since V-J Day. But vital gears are not meshing and industry isn't getting the job done that is necessary. The things people most need are those that are lacking. Food output is down more than a fourth. Coal production is lower by a fifth. The net result is a living standard that ranges from bare subsistence in some countries to a level far short of prewar in others. And even this depends on imports for which the area can't pay.

This melancholy economic picture has its political counterpart. The best organized and the most energetic political party in France and Italy is Communist. While the Communists in Germany and Austria are less strong, they still are an element to be reckoned with. These are all key areas which, should they fall within the orbit of an unfriendly power, could well destroy the freedom of political action throughout all of Western Europe.

Needless to say, such a development would have military implications of the utmost importance. It is a military axiom that any defense must be organized in depth. And in the event of any emergency "depth" for the United States must now include Western Europe.

It is this complex mixture of the economic, political, and military, then, that has led to the Marshall program. Underlying this program is a deep conviction: That Western Europe possesses the skills and resources necessary to work out its own economic salvation. The fact that in two years it has not done so reflects both the depth of the wounds it suffered in war and the bad breaks it has received since then. With time these skills and resources can reassert themselves. Meanwhile, food, equipment, and materials from America will shorten the job and enable Western Europe to stay on its feet.

Western Europe's Program

SECRETARY MARSHALL gave the program that bears his name its initial push. But it is Western Europe which quickly seized the initiative. A committee of 16 nations met and surveyed their needs and resources. From this survey grew a broad program designed to achieve a balance between the economies of Western Europe and the rest of the world by 1952. Moreover, the program seeks such a balance while raising the standard of living close to that of pre-war days. Hunger and disorder which force extreme social change might thus be eliminated.

As developed thus far Western Europe's economic program is not a detailed plan of action. It does, however, lay out the terrain that must be covered if its objectives are to be reached. Four fields are staked out for action. One involves an immense effort on the part of the cooperating nations to raise their own capacity and output. A second requires the establishment of internal financial stability in countries like France and Italy that now lack it. A third looks forward to closer economic cooperation between the participating countries on a more permanent basis. Finally, a fourth lays out the extent and nature of the aid which Western Europe will require from the United States and the rest of the Western Hemisphere.

It is this fourth aspect of Western Europe's program that is of primary concern to us here. Nevertheless, the hard core of the Marshall Plan is that aid alone can not solve Europe's problem. And it is no exaggeration to say that the most important features of any program are those which Europe itself must fulfill. In this regard, nothing is more critical than the goals set for an expanded capacity and production.

THE PRODUCTION GOALS

Europe's production goals also have an importance for American business. They suggest lines in which Europe eventually will become independent of the United States, as well as competitive in world markets. Here are some of their highlights:

a) An increase of steel ingot production to 61 million tons, a fifth higher than 1938.
b) Development of oil refining capacity to 2½ times pre-war (largely for refining imported crude).
c) Increase of coal output to 644 million tons (U.S. output in 1947 is around 600 million tons).
d) Rapid advance in the output of electrical products—needed in part to help equip a 25 million kw expansion of generating capacity.
e) A large increase in capacity of other key equipment industries; e.g., mine equipment, petroleum equipment, farm machinery, construction equipment.
f) Restoration of pre-war output of bread grains and cereals; expansion in sugar, potatoes, fats and oils.
g) Restoration of merchant fleets to pre-war size.

These are very ambitious goals. They call for a great advance from the current position, as the chart on the next text page shows. In some aspects (electricity, foodstuffs, perhaps coal, are examples) they appear unlikely to be met, at least by 1952. Such a development would, of course, modify the import list.

THE IMPORT REQUIREMENTS

To do the job that confronts it Western Europe has said it needs more than $20.5 billion of goods and services from this country over a period of four years. In return it would plan to offer us goods and services to the value of $4.7 billion. That leaves a whopping deficit of about $16 billion. The heaviest commodity export ($6 billion) – and the biggest chunk of the deficit – would arise next year. Thereafter, exports would fall off about

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Coal: KEY TO RECOVERY

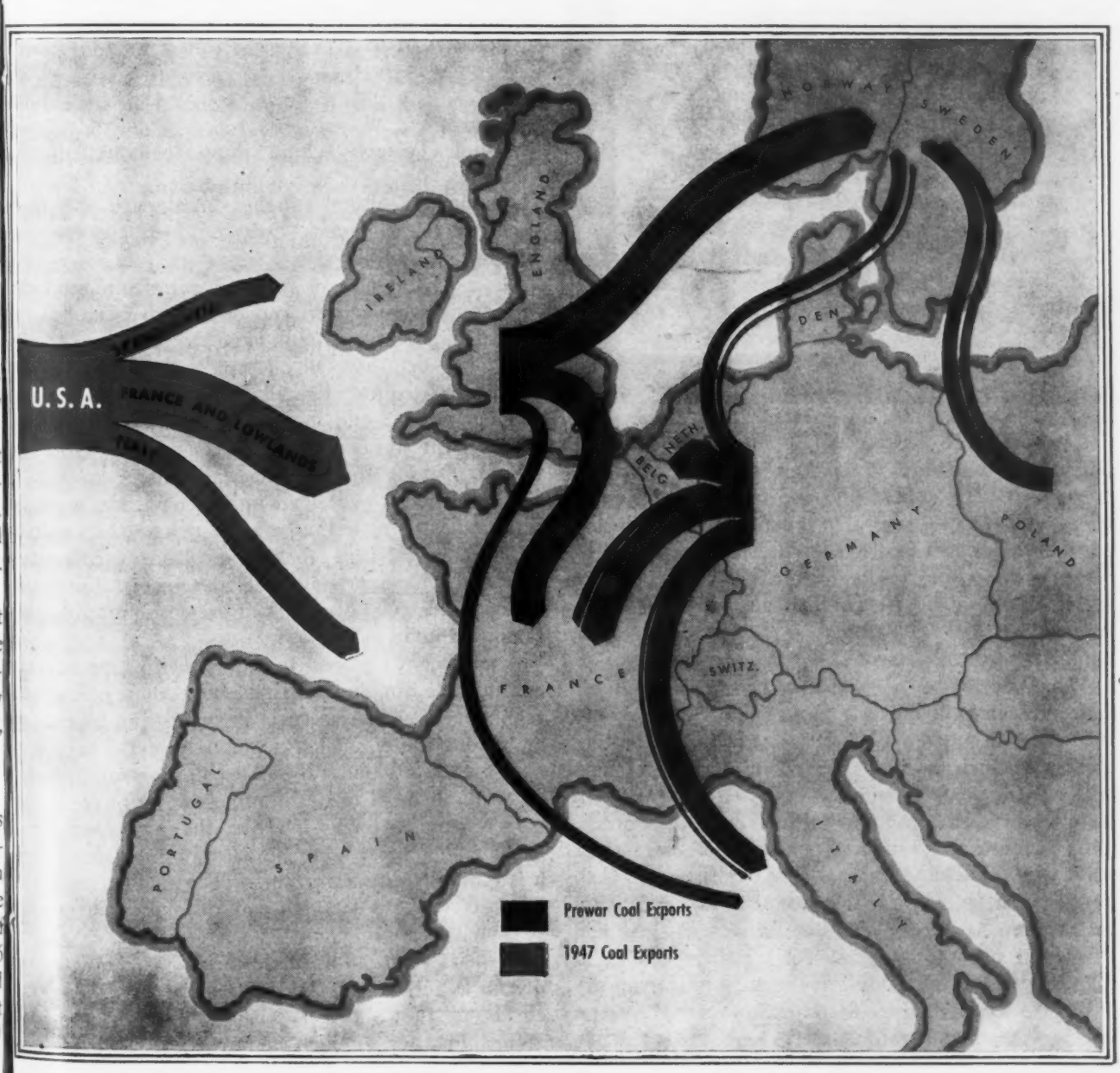
COAL IS AT THE HEART of what is wrong with European industry today. Because of the lack of coal, factories run part time, fields are less fertile, and firesides are cold.

What Western Europe plans to do about coal is typical of what it plans to do about industry generally. The job is to expand output in its own producing centers, resume exports within the region, and cut down costly and unnecessary imports from the United States.

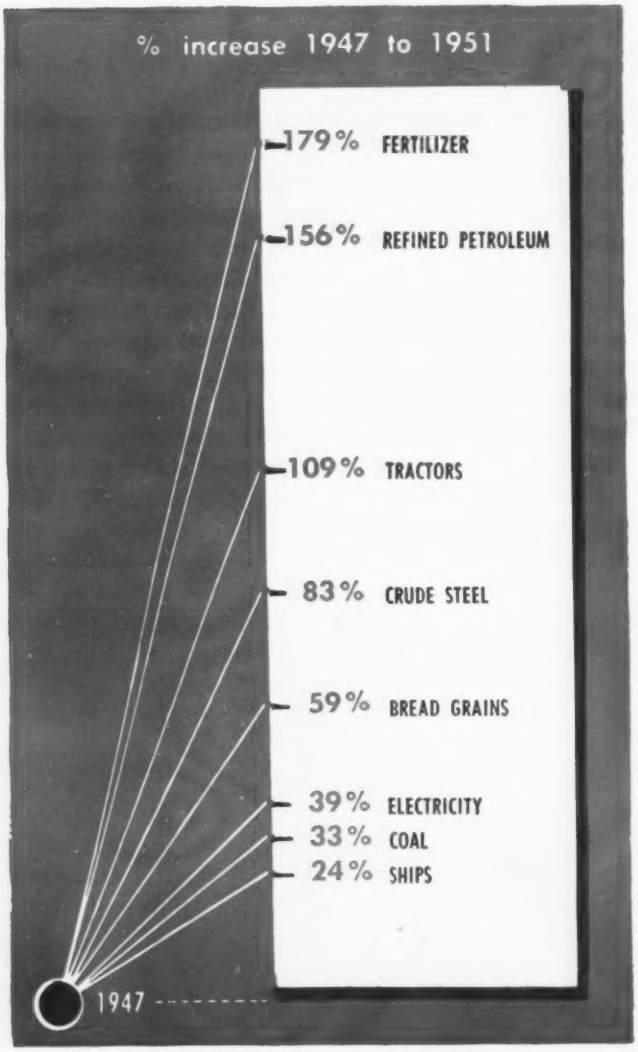
In the case of coal this means restoring a flow which in pre-war days was the life-blood of Europe's industry. As the map shows, two great coal centers – Britain and Germany – supplied not only their own nationals but the needs of other countries as well. Today Britain can't meet its own requirements and coal production in the Ruhr is but half of what it was. The result is the costly necessity to haul coal from the United States.

Western Europe will need 45.2 million short tons of U.S. coal next year. Meanwhile, it plans to build up its own production. By 1951 it hopes to turn out coal at more than the pre-war rate, with Britain and the Ruhr sending sizeable shipments to their neighbors. Coal from the U.S. will have been cut to 6.6 million tons.

Two developments are vital. First, Western Europe must reequip its mines. This calls for a vast production effort on its own part, as well as the import of specialized equipment from the U.S. Second, a river of coal, 34.2 million tons in 1951, must breach the iron curtain and flow from Poland to the West.



Western Europe's Production Goals



one-third to a total of $4.1 billion in 1951.

Nor is the U. S. the only base from which Europe needs vital supplies for which it can't pay. Canada and Latin America are asked to shoulder a trade deficit that comes to almost $6 billions for the four years. Needless to say, if food and raw materials are not available on credit from these areas, the larger will be the sum required from the U. S.

There already is considerable debate about these figures. There will be a lot more while Congress considers the aid program. The fact is, and this is the conclusion at which the President's Committee on Foreign Aid arrived, no final estimate of how much Western Europe's needs might cost over four years can be made. Crops, industrial production, prices, trade relationships and a host of other factors may turn out differently than anyone now expects. For this reason the United States may choose to review Western Europe's progress and its import needs on a yearly basis, rather than fix in detail a four year program. For the same reason our discussion of Western Europe's requirements concentrates largely on the picture in 1948.

As it now stands, the list of items that Europe wants to get from us is more general than specific. Moreover, inter-departmental committees have taken the list and pared it down, chiefly on grounds the supplies are not available. Here is the way the general categories shape up, both as initially requested and as revised. The figures represent total imports and are in millions of dollars.

	European Committee Estimate for 1948	Estimate for 1948 as revised	European Committee Estimate 1948-52
Food, Feed, and Fertilizer....	1,500	1,270	5,400
Cotton	400	350	2,000
Coal	340	370	700
Iron and Steel Products.....	370	230	1,200
Petroleum Products	510	485	2,200
Chemicals	250	200	850
Timber	100	95	400
Farm Machinery	370	100	1,100
Inland Transport Equipment..	200	60	490
Petroleum Equipment	170	130	555
Mining Machinery	80	80	220
Electrical Equipment	150	125	500
Machine Tools and other Machinery	545	450	1,750
Miscellaneous	1,065	1,065	3,030
	6,050	5,010	20,395

A quick glance behind these totals reveals the following:

Among agricultural supplies breadgrains and feedstuffs are the big items. Dairy products and fats and oils are also sizeable.

Of the $2 billion or more of petroleum products, three-fourths are refined and one-fourth is crude.

Coal shipments will bulk large the first year (45 million tons) but they fall off rapidly thereafter.

The steel request originally included 1.5 million tons of scrap in 1948 and more thereafter. This isn't available. Of the finished items, sheet and tin plate come to 744,000 tons in 1948, the peak year.

The chemicals wanted are industrial chemicals, paints, and medicinals as well as a lot of unnamed specialties.

The huge catch-all labeled miscellaneous covers textiles and whatever additional consumer manufactures Europe will seek. Aircraft and surplus ships are other important items in the group.

A number of items on the equipment list could cause considerable trouble. Farm machinery, mine equipment, refining equipment, electrical apparatus, and freight cars are among these. Each is examined in detail below.

These exports under the Marshall program, if carried out, will affect all of U. S. business down to the corner grocery store. In many instances the impact will be so slight and indirect as to be hardly noticeable. But in a few industries the program will loom as a major element, dictating production patterns and setting a limit to capital expansion plans.

It's hard to paint a simple picture of a situation so diverse as this. We try to do so below by dividing the effects of the Marshall program into several broad groups. First we consider the impact of the program on

the general level of business. Next, we cover the impact on leading industries – steel, oil, electrical equipment, farm machinery, and the like – and the effect on business through the creation of shortages in these items. Finally, we examine the influence of the program on farm prices and living costs.

THE OVER-ALL LOOK

The Marshall program comes at a time when certain demands contributing great inflationary pressure on business are beginning to slacken. While it will help hold business at a high level, the program itself is not great enough to maintain a general inflationary pressure. Nevertheless, it will give new strength to shortages that have been troublesome to business. In these latter areas, as well as on the food front, prices will continue firm and may go even higher.

If the program is carried out along lines described above exports to Europe will run about $5 billion. The gain here will offset a decline that has already begun in U. S. exports to other areas. After a careful study of these divergent trends, we conclude the end result is likely to be a total export of goods at a rate of about $15 billion in 1948. However, this rate will only be reached after the program starts rolling. The sale of services – shipping, tourist and the like – will add another $2.5 billion to our foreign account. Moreover, this over-all sum of $17.5 billion probably will run about $9 or $10 billion greater than our imports.

Under the Marshall program, then, our foreign trade in 1948 will be carried toward the peak that prevailed in second-quarter 1947. But the over-all inflationary impact of exports in 1948 is bound to be less than it was in second quarter 1947. Not only is our capacity to produce growing, but certain elements in our domestic demand are almost certain to be less strong next year.

This last fact is important and needs to be spelled out. Indeed, it's impossible to determine the effects of the Marshall program without some idea of what would happen to business without it. The accompanying chart which shows how our gross product has been split up in the past several years serves as the starting point for such an estimate. There it can be seen that the spending of domestic consumers takes the biggest slice of the gross product ($164 billion). However, the share going to business and to government also has been sizeable (about $30 billion each). Alongside each of these the net expenditure of foreigners on our goods seems small. Nevertheless, it has a tremendous importance to a huge number of business firms and industries.

Left by themselves, the spending of consumers and of government would be likely to fall very little if at all next year. But business outlays – spending on plant, equipment, inventories, and residential housing – are another matter. Here the vulnerable items are plant and equipment. Capital expansion has been extraordinarily large for two years, and in not a few cases business is completing its initial post-war program of capacity expansion. Therefore, some decline, but not a large one, is expected in the aggregate of business spending during 1948. This in turn would have some reaction – but again a minor one – on the spending of consumers.

The net effect of such developments should be to place industry in a better position to meet the pressing needs of the Marshall program. This does not mean, however, that the program can be handled without difficulty. The trouble is that many of the items Western Europe most needs are those which would, under normal conditions, continue in tight supply. It is these bottlenecks that business will want to anticipate and, to the extent possible, overcome. Here are the facts concerning the most important of them.

COAL: TRANSPORT IS THE DIFFICULTY

Western Europe wants 45 million tons of coal from the U. S. in 1948. Thereafter requirements drop sharply to 6½ million tons in 1951.

U. S. production of bituminous next year ought to equal the 600 million tons turned out in 1947. If it does we can meet Europe's need. However, the job will call for careful scheduling of delivery. For the real problem in coal is a shortage of coal cars. This has plagued industrial consumers in 1947. Unless car turn-around times are improved (they now average 14 days as against 11 during the war) car shortages will continue through 1948. Under such circumstances, exports to Europe won't permit the accumulation of normal stockpiles – a fact managements in many industries won't like.

Any actual shortage in production that might develop will be limited to special types of coal – particularly the better grades of coking and by-product coal. Europe has concentrated largely on these. Such concentration isn't necessary, but since transport costs (the big element for Europe) are about the same for all grades, Europe has

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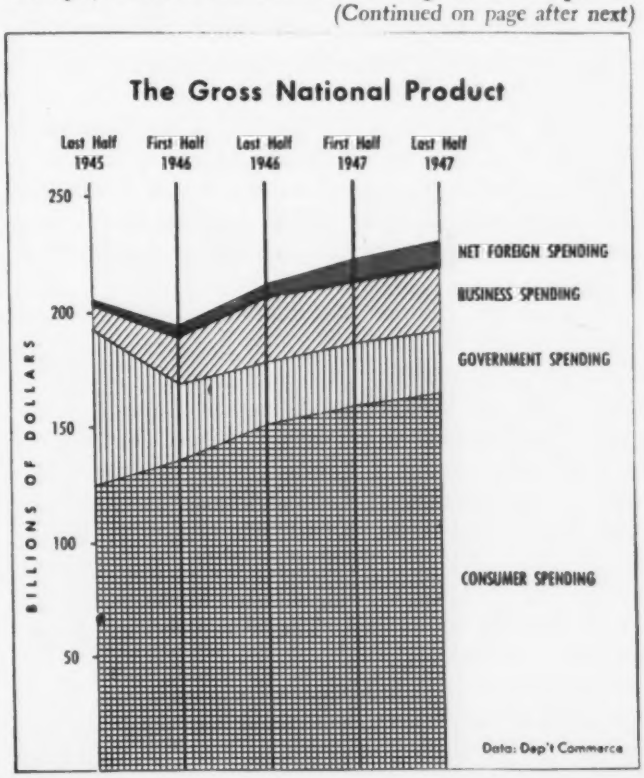
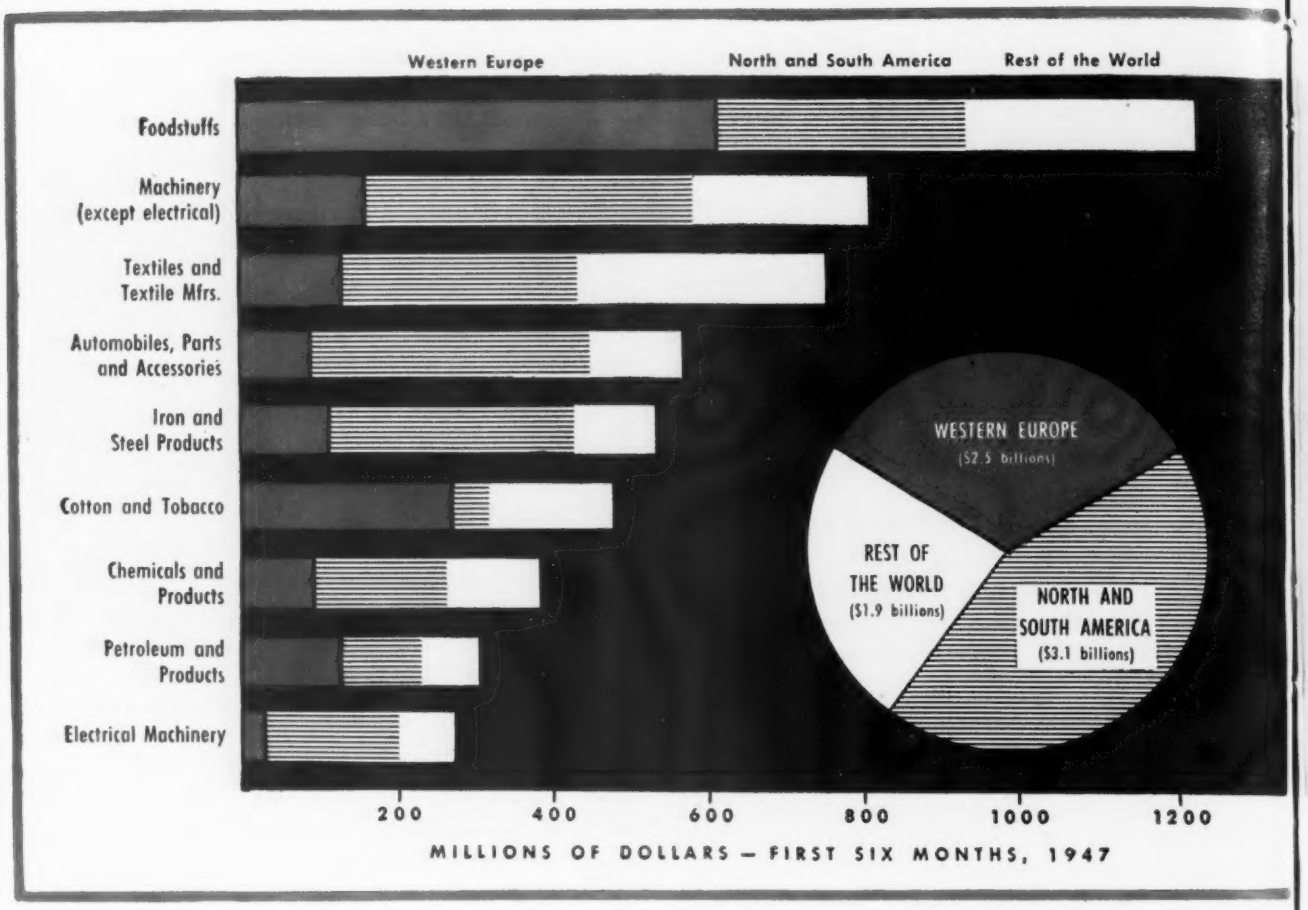




U. S. EXPORTS . . . Where they go — What they are

U. S. EXPORTS THIS YEAR hit an all time high. Shipments in the first six months were at an annual rate of $15 billion, four times the pre-war rate. Since then they have declined, but not greatly. The export rate now is about $13 billion.

Foodstuffs have moved to the top of the export list. The needs of Europe combined with crop failure in Southeast Asia have revived an export that before the war seemed all but dead. About half this record flow has been directed to countries included in the Marshall program.

Next on the list are the durable goods that have come to symbolize the strength of American industry. Machinery, automobiles, and steel products are all in extraordinary demand abroad. In spite of domestic shortages, shipments have been relatively heavy. Thus in one form or another about 18% of our tight steel supply has moved abroad this year. Canada and Latin America have been the big customers, and sizeable quantities of machinery have also gone to Russia. Other than France (which had a big loan for the purpose) Western Europe has not been in the market. They've needed the goods but lacked the dollars.

Textiles have been another huge export group. Here the influx of new foreign customers has been warmly welcomed. For heavy buying from abroad has kept textile output going at a good pace.

Cotton, tobacco, oil, and chemicals are other supplies that bulk large in U.S. trade. Western Europe has been a principal buyer of all except chemicals. Canada and Latin America again have been at the head of the line for these last items.

Regardless of the Marshall Program, some shift in U.S. export trade could be expected in 1948. The recent splurge of foreign buying cannot be maintained if for no other reason than that funds will not be available. U.S. import of goods and services – the chief source of dollars for most of the world – has been only 40% of exports. About $10 billion of loans and relief grants helped keep Europe in the market. At the same time, foreign nations drew down dollar balances and shipped gold.

Net effect of the Marshall program on exports is to provide $4 to $5 billion of trade that otherwise is lacking. Not all this added trade need be with Europe. If the U.S. provides dollars for Western Europe to buy in Latin America and Canada—which it well might—those areas will spend more here. Nevertheless, under the Marshall program much more of our trade will be directed toward Western Europe and the things it wants. These are foodstuffs, industrial supplies, and machinery. Little in the way of textiles or automotive equipment is on Western Europe's shopping list.

sought the best. U. S. utilities, steel and gas manufacturers, and the Great Lakes trade are large domestic users of these fuels. They will continue to feel competitive pressure unless Europe's buying habits are changed.

PETROLEUM — WORLD-WIDE SHORTAGE

Regardless of whether the U. S. provides the full amount of petroleum Western Europe has asked for, industry and households may have to go slower on switching to fuel oil than they desire. Oil already is in tight supply in America, and this reflects a shortage that is world wide. The cause of this shortage lies not only in refining and production bottlenecks. Perhaps even more important is the lack of sufficient transport capacity, particularly pipe-line and tank car. With steel (including pipe and tubes) as it is and will be, this tight oil situation can't take a quick turn for the better.

Europe wants to build up its imports of crude and do a steadily larger amount of processing on its home grounds. Here is the way dollar imports of the two broad groups were initially scheduled by the European Committee at Paris (figures are millions of tons).

	Imports of Crude	Imports of Refined Products
1947	6.1	17.0
1948	8.5	17.7
1949	10.2	19.0
1950	12.6	18.2
1951	18.8	13.7

These requirements are not likely to be met in full during 1948. However, we should at least match and perhaps slightly better the export of 1947. In 1949 the situation should be somewhat easier. But no one will be surprised if refinery construction in Europe lags and more refined products are needed than plans call for.

The European Committee was careful to say these imports were from "dollar areas." That means they are supplied by American companies (who need payment in dollars), but not necessarily from the United States. As a matter of fact, almost 60% of Europe's oil in 1946 came from the Caribbean and the Middle East, as against 20% from the U. S. proper. American companies furnish much of this foreign oil and any increase in exports probably will flow from foreign supplies.

All this is not to say that the export of oil from the U. S. proper is not considerable. It is, with exports this year running at a rate of more than $600 million. About $250 million of this—chiefly refined products—has gone to Europe. From the standpoint of refining capacity alone, shipments of refined products from the U. S. could, in a pinch, be stepped up slightly. But capacity also should be available in the Caribbean and the Middle East. It makes economic sense to ship from these other areas and they should get the business.

CHEMICALS AND FERTILIZER

Nitrogen fertilizer is the one U. S. chemical product high on Western Europe's priority list. Industrial chemicals and pharmaceuticals are wanted, but are not likely to be purchased in quantity if funds run low.

Nitrogen, of course, is in extremely short supply the world over. Moreover, this shortage probably will not be licked until the early Fifties. If Western Europe were to receive the full 319,700 tons of nitrogen it desires from the Western Hemisphere in 1948, consumption in the U. S. would of necessity be reduced. Not only would commercial exports have to be increased, U. S. imports would also decline. Large supplies (180,000 tons) from Canada and Latin America make the U. S. a net importer on commercial account.

The likelihood is that Western Europe will get more nitrogen next year than this. However, the advance will come out of a small expansion of production, leaving U. S. consumption what it was. From the U. S. some 70,000 tons (6½% of production) may be shipped. This would equal commercial exports to all areas in 1947.

The U. S. also will provide phosphates to Western Europe – perhaps 80 to 85,000 tons. However, production should be adequate to carry this with little trouble.

Among other chemical products, Western Europe would like the following (figures are millions of dollars).

	1948	1948-51
Industrial Chemicals	50	190
Paints and Pigments	40	145
Coal Tar products, Medicinals, etc.	160	515
	250	850

No forecast of our actual export of these products is possible. However, shipments are likely to run considerably lower than the above figures suggest. Western European production can fill the most essential needs. Since supplies here are very tight on many items, exports to Europe may not greatly exceed those of 1947.

STEEL — STILL THE NO. 1 PROBLEM

No material caused more trouble for U. S. industry in 1947 than steel. The extent of the shortage in 1948 – and the possibility that it might end – has been a key element in the plans of many producers for next year. Under such circumstances the needs of Western Europe are bound to be weighed and measured with care.

Here is what the initial report from Paris asked for in the way of steel (figures in thousands of tons).

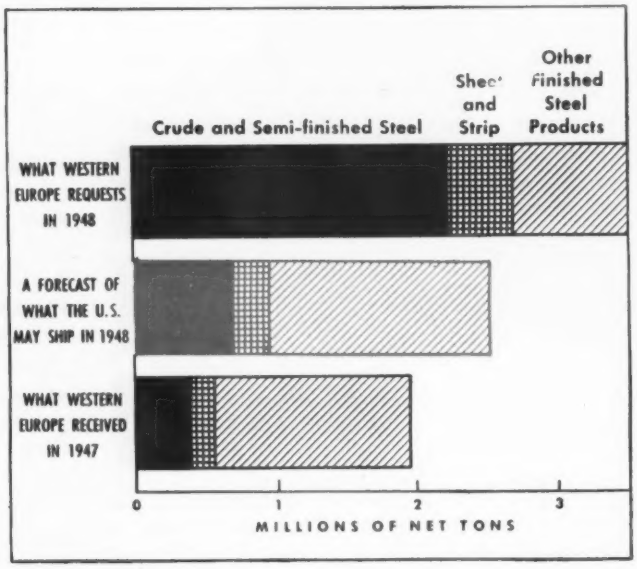
	1948	1949	1950	1951	Total
Ingots and semi-finished items	2,244	2,299	2,475	2,387	9,405
Sheet and strip	424	198	34	...	656
Tin plate	320	314	296	275	1,205
Other finished steel	500	...	...	...	500
TOTAL	3,488	2,811	2,805	2,662	11,766
Steel scrap	1,500	2,000	2,300	2,500	8,300

At first glance these requirements don't appear too hard to meet. This year we have been sending steel abroad at the rate of 6.2 million tons annually. Canada and Latin America took more than 3.5 million tons of this. Europe took only about 2 million tons. Apparently the problem could be solved by shifting exports.

Unfortunately, the answer is not as simple as this. What Western Europe wants – it's really Britain and Italy that want it – are steel ingots and other semi-finished items (billets, blooms, etc.). These the U. S. has been consuming itself. Exports have been almost entirely in the form of finished products.

From the standpoint of the steel industry, shipment of semi-finished items has two bad results. Certain finishing capacity would be made idle. As a matter of fact, the amount of semi-finished steel Western Europe wants is 40% of the supply non-integrated producers of steel products have been able to get from the integrated producers (who turn out the ingots). In addition, badly needed scrap from the finishing process would be lost.

The Dilemma in Steel



What we shall do about this hadn't been settled yet. Those of the President's Advisory Committee on Foreign Aid who specifically studied the question felt very little semi-finished steel should go abroad. This, however, would hit Western Europe hard. A likely compromise – and one suggested by the Government agencies reviewing Western Europe's requirements – would substitute finished items for semi-finished. Shipments of the latter in 1948 would be held to around 650,000 tons, less than a third of the initial request. But export of finished steel (other than sheets or tin plate) would jump to 1,150,000 tons. On one matter, however, all seem agreed. No straight scrap can be sent. The U. S. just doesn't have it.

Where does the steel consumer stand on all this? From his point of view the export of any steel makes life more difficult. No matter what is shipped he will feel it next year. Here is the probable situation under either the initial request or as it may be revised.

a) Overall the supply will remain about as tight as it has been this year. Although demand on the part of equipment producers is expected to decline somewhat, this will be offset by heavier requirements for construction, transport, and export. Late in 1948 and early in 1949, addition of 2.5 million tons of basic ingot capacity may help somewhat.

b) Steel sheets will continue to be a headache, but probably slightly less of a one than in 1947. Long awaited additions to capacity are beginning to come in. By the end of 1948 the total should stand 3 million tons higher than at mid-1947 (a gain of about 18%). Western Europe probably won't get all it has asked for. Shipments might not exceed 225,000 tons, half the initial request. And most of the increase over the export this year (164,000 tons) is likely to come out of shipments that have been going to other areas.

c) Tin plate also seems destined to remain tight. But here the trouble is as much tin as steel. Exports this year are 561,000 tons, but only a fourth has been shipped to Western Europe. If Europe's requirement of 320,000 tons is to be met, other world areas will probably bear much of the burden.

EQUIPMENT BOTTLENECKS — COAL EQUIPMENT

The equipment items are the toughest part of the Marshall program to assess accurately. The European Committee itself failed to develop any clear-cut list of what will be needed. The large sum labeled "mine equipment," for example, includes a certain amount of electrical apparatus. And no detailed breakdown whatsoever was initially presented for the broad equipment groups listed earlier. Some of these shortcomings will be rectified by information now being obtained. In the meantime, equipments lines where the added needs of Western Europe undoubtedly will cause difficulty can be earmarked.

Coal equipment is one such item. The total of $80 million which Western Europe wants in 1948 is half again as much as our export to the entire world this year. Today order backlogs run from 6 to 24 months on many types of mine equipment. Fortunately, some that are most tight – mine locomotives, coal loaders, coal cutters (except the long wall type) – apparently are not wanted by Western Europe in quantity.

Equipment that is needed quickly includes pneumatic tools, conveyor belting, and long wall cutters. These are all adaptable to European mining and can relieve bottlenecks that now exist in supply. Conveyor belting is the most difficult of these items. However, the main trouble in meeting Western Europe's coal equipment needs may arise from another direction – the supply of machinery, parts, and materials for producers of mine equipment in Britain and on the continent. Without help, European plants can't meet the production schedules set for them.

PETROLEUM EQUIPMENT

Western Europe may spend about $130 million on U. S. petroleum equipment next year. This is three-fourths of what was originally planned, but it comes close to our total export of petroleum equipment in 1947. The entire expansion program projected by Western Europe's oil industry will run to some $1.8 billion in four years, with a third for U. S. equipment.

Big items needed probably will include steel pipe and tubes, pumps of many sizes, large vessels (fractionating towers), turbo-generators, and well drilling apparatus and parts. Probably the most difficult problem here is steel tubing. Orders are now on the books for production into 1951. Very little has been exported, and what Europe gets in 1948 will clearly be at the expense of domestic consumers. Other trouble spots are pumps, turbo-generators and large vessels.

Our own petroleum industry is undertaking a record capital outlay on production and refining of about $3 billion this year and next. Part of this is in the Middle East and Western Europe itself. Therefore Western Europe's oil industry will compete with American companies for scarce equipment and supplies. Such competition is to be expected in Europe, as well as here.

Since the American program is much further advanced, Western Europe's expansion plans may well lag. This certainly is likely to be the case in the Middle East. Almost half the U. S. equipment wanted by British and French companies is for projects in that area. Many of these require the help of American engineering firms, since U. S. engineers are most familiar with recent developments in installation and design. This engineering talent is itself a scarce element in the petroleum expansion scheme. It may prove the factor that sets a slower pace than Western Europe had planned.

FREIGHT CARS — DELIVERIES LAG

Freight cars for Germany are the only import of inland transport equipment which Western Europe urgently needs from the U. S. Production within the area can take care of most other requirements.

Import requirements initially were set by the European Committee at 103,000 cars, with 89,000 needed in 1948-49. European equipment is less than half the size of ours; so in terms of U. S. freight cars this boiled down to about 20,000 cars in 1948 and 19,000 in 1949.

Freight cars, of course, are one product whose need in the United States is urgent. Car builders have more than 100,000 cars now on order. Thus far their deliveries have failed to average more than 6,000 cars a month.

The President's Committee on Foreign Aid, surveying the tough situation here and in Germany, finally recommended a shipment in 1948 of 20,000 cars (the American equivalent is 8,000). To the extent this is met, American railroads will have to accept somewhat later delivery. The number involved is not great enough, however, to make any appreciable difference in the overall freight situation. This is likely to remain about as tight in 1948 as it has been this year.

ELECTRICAL EQUIPMENT

Equipment for Europe's electrical industry may prove less troublesome than originally expected. Western Europe plans to produce all the heavy apparatus required for its vast generating plant expansion — at least for the first several years. Thereafter, U. S. producers will be in a position to help them if they need it.

The four year need for U. S. equipment originally was set at $500 million. Some $300 million of this is to be spent on items that do not include any heavy apparatus. Materials and equipment required by the electrical manufacturers themselves are on this list, although no details are given. Its exact effect on our own electrical industry can not be measured until we know more specifically what is involved.

The remaining $200 million will go for hydro equipment on projects of an international character. These may possibly be financed by the World Bank and an immediate start on the equipment is probably not necessary. U. S. electrical equipment producers certainly could not get such work well under way for several years. But certain shipbuilding firms might begin on turbine equipment if desired.

If the electric equipment story ended at this point, it wouldn't be so bad. However, the above figures don't give the full picture. Large motors, turbo generators, and other items are also required for expansion in the petroleum, coal, and steel industries. In many cases these very products have held up the completion of new capacity in this country. Even without Europe's demand they would continue tight well into 1949.

MACHINE TOOLS AND OTHER MACHINERY

Western Europe hasn't set any fixed estimate of what it might spend on machine tools, construction machinery, and other equipment. If the entire program went as initially planned, about $550 million would be available in 1948 for such products. However, the amount actually spent will probably be considerably less than this. No direct aid is likely to be given by the U. S. for the purchase of such equipment; so the countries concerned will have to use whatever funds they can scratch up themselves. How much this will be no one knows.

Machine tools are certain to bulk large on this list. Shipments to Western Europe in first-half 1947 were at an annual rate of $75 million. They should be in larger volume next year. Western Europe appears to hold a fairly adequate stock of general purpose tools. But the expansion of capacity in a number of metal working lines, if carried through, will require a large variety of special purpose tools.

Machine tool needs can be met without difficulty. However, one group of products that might cause trouble is construction equipment. This has been in great demand here. While some items are approaching an easier supply position, others like cranes and power shovels remain very tight. Western Europe has spent a modest sum on U. S. construction equipment — $16 million in the first six months of 1947 — but it would like to spend more. If it tries to do so, exports to Canada and Latin America may have to be cut.

Demand for U. S. textile machinery by Western Europe also has been relatively small — about $7 million in first-half 1947. This situation is expected to continue.

with the region producing most of what it needs itself.

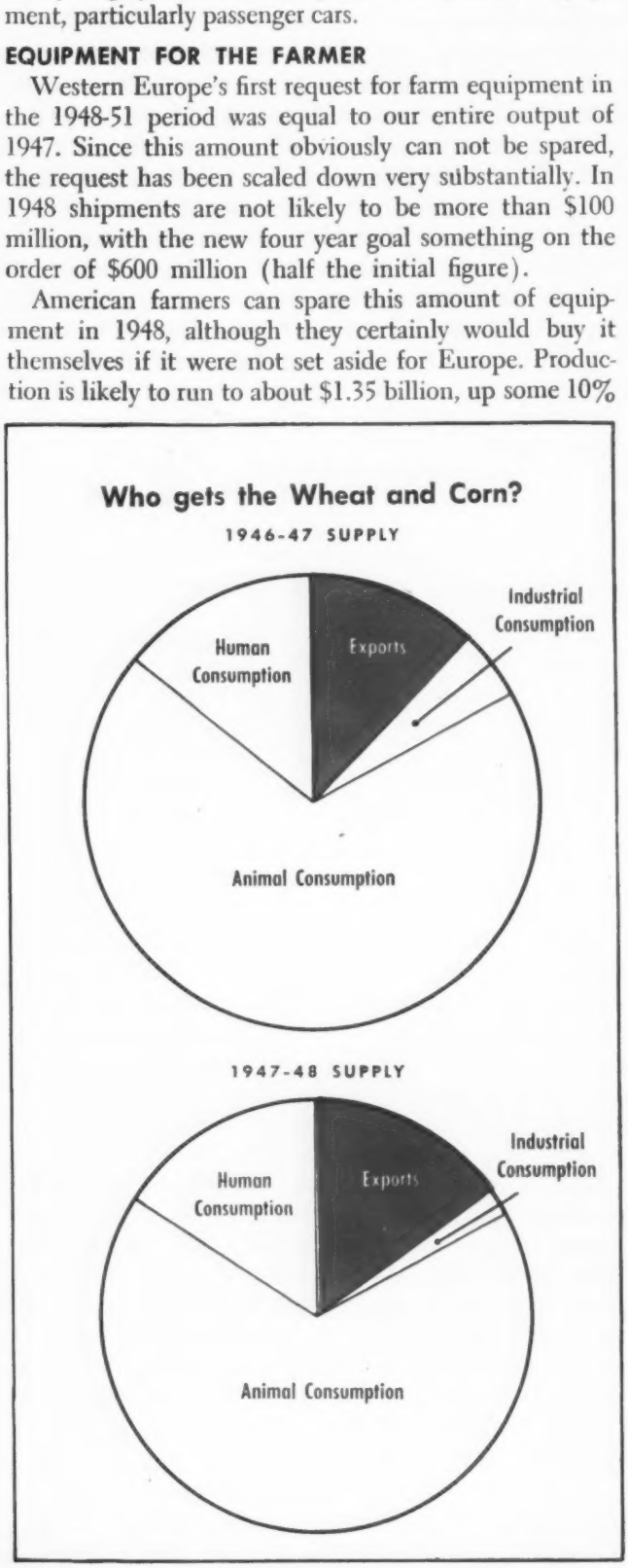
Steam engines, canning machinery, milling machinery, and a long list of other equipment items round out Western Europe's capital requirements. Most of these can be supplied without many of the difficulties reviewed above. And there is one product of great importance to America which Western Europe plans to satisfy largely from its own plants – automotive equipment, particularly passenger cars.

EQUIPMENT FOR THE FARMER

Western Europe's first request for farm equipment in the 1948-51 period was equal to our entire output of 1947. Since this amount obviously can not be spared, the request has been scaled down very substantially. In 1948 shipments are not likely to be more than $100 million, with the new four year goal something on the order of $600 million (half the initial figure).

American farmers can spare this amount of equipment in 1948, although they certainly would buy it themselves if it were not set aside for Europe. Production is likely to run to about $1.35 billion, up some 10% from 1947. But other foreign customers also will have a bid in for a part of this. Canada and Latin America, who bought some $105 million of the $175 million of farm machinery exported this year, need further equipment badly and cannot be shut off with nothing.

After meeting the European and other export demands, American farmers still should receive more new equipment than in any other year except 1947. Thus, they will continue to make considerable progress in their drive to mechanize, although the pace will be slower than they would choose. Above all, the demands of Western Europe and other countries should not be too large to interfere with U. S. food production.



THE FOOD SITUATION

Food may turn out to be one of the chief trouble spots of the Marshall program—particularly for American business. Because of the program, food exports will be larger, domestic consumption somewhat smaller, and prices higher than they otherwise would be. In spite of this, Americans should eat about as well next year as in 1947. However, if prices are bid up in the process, wages and industrial costs may climb with them.

As matters now stand Western Europe would plan to spend about $1 billion on U. S. food in 1948. This is less than they spent in 1947. It also is less than Western Europe feels is necessary to realize the minimum standard of living it set up as a goal for 1948. However, the overall supply of grains – by far the largest commodity on the food list – is down this year by 14%. As a result estimates of Europe's food imports have been reduced.

Here is what went into the record export in the fiscal year 1946-1947. (Figures are thousands of long tons).

	Shipments to Europe 1946-7	Total Exports 1946-7
Wheat and Flour (grain equivalent)	6,638	10,520
Other grains	2,572	4,538
Fats and Oils	156	233
Meat (carcass weight equivalent)	195	224
Dairy Products	322	493
Other Foods	1,266	2,425
Total Foods	11,149	18,433

The President's Committee on Foreign Aid has recommended Europe receive about the same total foodstuffs as last year. However, the product mix will have to be changed. Moreover, the rest of the world will get about a million tons less. Wheat will substitute for corn, but even then the total supply of grains available to Europe will be down 700,000 tons or more. Half of this may be made up with a heavier shipment of fats and oils, including peanuts. Dried milk solids, dried fruits and other products will close the rest of the gap.

There is no doubt the U. S. can send abroad whatever foodstuffs Congress finally agrees upon. The big question is whether this can be done without forcing prices higher. Wheat shipments, for example, may run 40% greater than would normally be exported under current circumstances.

Unfortunately no final answer on food prices is possible. On the supply side much will depend on how next years crops turn out. So far crops are off to a bad start, with winter wheat probably below that of a year ago. As for domestic demand, consumers are likely to have at least as much purchasing power next year as this. The problem is to persuade them to use it on commodities that embody less grain.

When all these considerations are added together it is apparent that food prices over-all do not stand much of a chance to fall markedly in 1948. On the contrary, there is more than a small chance they will rise. Moreover, under the Marshall program exports in 1949-50 would still help support farm and food prices. Any substantial decline could be initiated only by a fall in domestic consumption. Needless to say, these are matters that are important to the business community.

Long Range Problems

A PROGRAM of the size Western Europe has set for itself inevitably will influence American business over the longer run. New industries are to rise, old ones are to be rebuilt and expanded, exports are to be pushed — all this has a direct bearing on America's foreign markets of tomorrow. Any sound and final judgment concerning the Marshall program, therefore, must weigh certain long run considerations as well as the short.

These longer range considerations are summed up most simply in an assessment of the broad pattern of Europe's future trade. Here a few key trends serve as useful signposts. They are:

a) Industrially Western Europe is preparing to make itself more independent than before the war. This will reduce its imports from the United States. After 1951 export of American manufactures to Europe will be concentrated largely in specialized items which this country has a superior knowledge and skill to produce.

b) Prior to the war Western Europe was primarily an exporter of textiles, industrial products and high quality consumer goods. Industrial revival is along the lines that will push these same products. However, Western Europe's program for expanding industrial capacity points to one significant modification. Capital goods exports — electrical equipment, industrial machinery, finished steel — will bulk much larger than at pre-war.

c) Western Europe's world trade must be considerably larger than in the late thirties. Two developments account for this. First the split in Germany and Europe makes necessary a much larger import of essential foodstuffs and materials from outside the Continent. Second, Europe now must pay for a larger share of its imports with exchange derived from exports. In the Thirties, about one-sixth of Europe's imports represented a return on investments held abroad. While this margin is not eliminated, it has been cut substantially.

d) By far the largest items on Western Europe's import list will be foodstuffs and raw materials. These needs to some extent must govern the location and character of the markets to which it exports. The U. S. must continue to be one such market, for Europe will need our wheat.

A survey of Western Europe's import needs in 1951 shows that Britain and Western Germany are the two countries to whom world trade will be of decisive importance. Other countries will trade as they always have. However, their ability to feed themselves to a large extent lessens their trade burden and makes possible the concentration of much of it within Western Europe itself. It is Britain and Germany, therefore, that are likely to become America's heaviest competitors.

Britain has the world's greatest food deficit. Moreover, its factories are largely engaged in converting the raw materials of other countries into finished goods. Britain therefore must export or die, and that is more true today than ever. The British now have set an export goal that would boost shipments to 175% of their pre-war volume. Later they may pare this. Nevertheless, an export volume at least half again that of pre-war will be necessary for Britain to restore its living standard.

Some clues to what and where Britain will export are available in its current trade pattern (see chart). A close study of this pattern leads to one broad conclusion. The British are concentrating on the export of the same general lines which the U.S. will push. Machinery, automobiles, iron and steel products, electrical goods — these are items that even today stand high on the export lists of both Britain and the United States. Britain in particular must turn to durable goods of this character to replace smaller coal and textile exports.

Prior to the war Britain sought to direct exports primarily to two areas – her empire and Western Europe. Except for foodstuffs from Argentina, British imports from South America were small. This situation has not changed, and there is good reason to believe Britain will seek to maintain it. As the chart shows, about half Britain's postwar exports have been allocated to the Empire, and another quarter to Europe.

Other than in Canada, U. S. firms find it hard to get into this Empire trade. Empire countries have large sterling balances and lack dollars. It is not surprising, then, that they use dollars chiefly for goods Britain can not itself deliver. Such a situation may well last.

The German position is somewhat different, but not radically. Today Western Germany's population of 48 million is almost a fourth greater than in the late thirties. Yet the region can produce little more than half the food it requires. Unlike Britain it must start from scratch in order to develop export markets so as to pay for its food.

Coal will be one money maker for Germany, but it won't earn exchange in all places from which Germany must buy. A likely development is the resumption of shipments of those metal products and chemicals which the Ruhr can produce efficiently and in quantity. Iron and steel products, machinery, chemicals and possibly electrical equipment might be expected to flow from German plants for sale on other continents.

South America, with its food and raw materials, is a natural target for German trade. Such an exchange grew rapidly in the twenties, only to fall victim to the great depression. By the late thirties it was again on the road to revival. The third great push for German-Latin American trade is expected in the fifties.

THE FAR EAST

With Britain enlarging its trade to the Empire and Germany coming into other markets, U. S. traders certainly will feel a competitive pressure that is not present today. How tight that pressure is may hinge on developments in yet another region – the Far East.

The Far East is a vast agricultural and raw material area that has hardly moved to the threshold of industrialization. Yet it has great centers that lend themselves to industrial growth. If political stability were to be established in the Far East, the way would open to a trade greatly benefitting both Europe and the United States, as well as the Far East itself. A surplus of rubber, tin, cotton, wood fibers, and even foodstuffs might then be produced and exchanged for the industrial products of the West.

The Far East, then, is one of the big unknowns in the foreign trade equation of the next decade. Another unknown is the reestablishment of trade between the East and West of Europe. Western Europe's plans count on such trade, and it makes good economic sense. But no one can say for sure that economic sense will prevail in this instance.

These unknowns make any final judgment about the long range success of the Marshall program impossible. This much is certain, however. Without the restoration of East-West trade in Europe, a large expansion of Far East trade becomes an absolute essential. In the absence of both, Western Europe cannot possibly achieve stability by 1952.

Pros and Cons

ANY BALANCE SHEET set up by the business man on the Marshall program will carry a number of items on the liability side. Some of the main entries are these:

The program will be costly – perhaps as much as $15 billion. Through their tax bills business men will bear a good share themselves.

At least for 1948 a number of troublesome bottlenecks will be sustained and even magnified. As a result some producers won't realize the expansion they plan.

The high cost of living, the peg on which many labor troubles hang, will move down very little, if at all, and it may move up.

In helping Europe to reequip itself, American industry is arming a potential competitor. Moreover, the arms it offers are of the most up-to-date variety.

There is no guarantee the program will succeed; as a matter of fact certain conditions essential to its success make it look like a risky bet indeed.

Obviously none of these shortcomings can be taken lightly. Against them, however, can be placed some very weighty items on the asset side.

First, and very important, is the simple but humane consideration that without U. S. aid people in a number of Western European countries will be placed in dire straits. At best they will lack adequate food for a healthy life. At worst they will starve.

The economic situation in Western Europe has a profound political and military meaning for the U. S. This is a matter of direct interest to the businessman. If Western Europe ever loses its political independence to another foreign power, the ultimate cost to America will make the expense of the Marshall Plan look like a mere pittance.

Finally, the Marshall program offers the only hope of realizing some measure of economic stability in a world that today appears permanently upset. In this regard the program can do no harm, but only good. Even if it falls short of its stated objectives, Western Europe will have taken a long stride forward.

The assets outbalance the liabilities.

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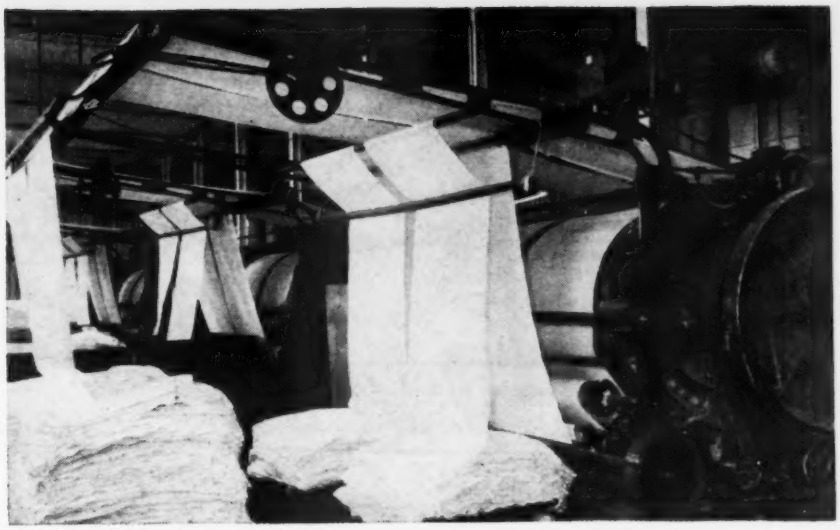


To nap flannel successfully and economically requires that as few runs as possible through the nappers be made to obtain a compact, uniform nap. At Dundee Mills, six runs are usually made on 4.25-yd. sheeting and eight runs on 3.00-yd. sheeting.

Details for Producing Napped Goods

Drawing (1st process)	58 gr.
Drawing (2nd process)	58 gr.
Roving (for warp)	3.70 hank
Roving (for filling)	1.20 hank
Yarn no. (warp)	30s
Yarn no. (filling)	14s
Warp ends per in.	46
Filling picks per in.	44
Ends in each selvage	30
Cloth wt. (yd. per lb)	3.50

Minimum Runs Desired In NAPPING FLANNEL

HIGHLIGHTS: *Six napper runs are employed on 4.25-yd. sheeting at Dundee Mills, Griffin, Ga.—Sheeting loses 8 to 10% of its weight in bleaching and 5 to 7% in napping —Sanforizing enhances appearance, hand, and strength of the flannel.*

By E. DALTON WHITE

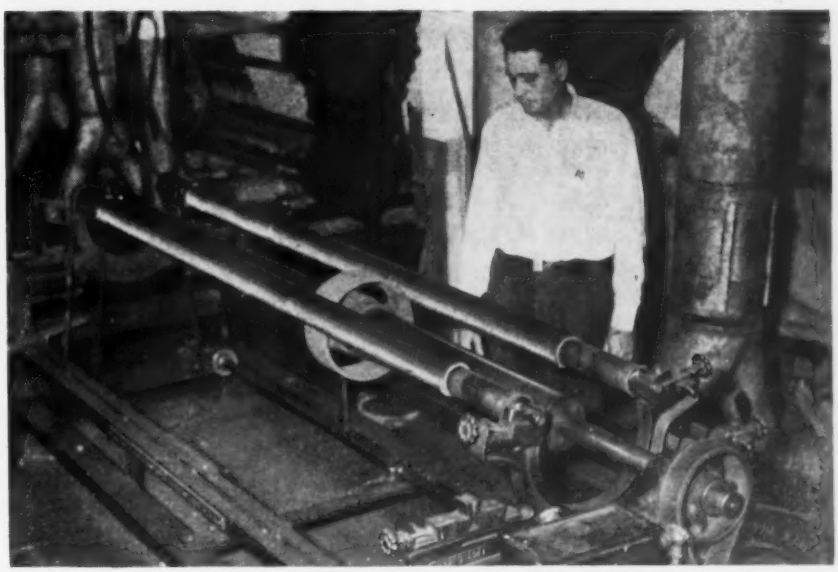
TOP-QUALITY FLANNEL is being produced with a minimum number of runs through the nappers at Dundee Mills, Griffin, Ga., by close control of three basic elements: (1) selection of raw cotton, (2) preparation of gray goods, and (3) adjustment of napper working parts. Blending different-staple cottons, proper selection of twist for the yarns, and accurately setting the speed and working parts of nappers are coordinated to produce the maximum fabric breaking strength consistent with an even thickness of soft and crunchy nap.

Selection of good grades of cotton is the first step in the production of flannel. The cotton fibers must be of the proper character, since harsh and wiry fibers will not properly respond to the napping process. Long-staple cottons must be avoided. Tests run at Dundee indicate that in many instances a poor grade of flannel resulted directly from an improper selection of cotton. Low-twist yarn is, of course, desirable for the filling. Warp yarns may have standard twist in order to give strength to the cloth.

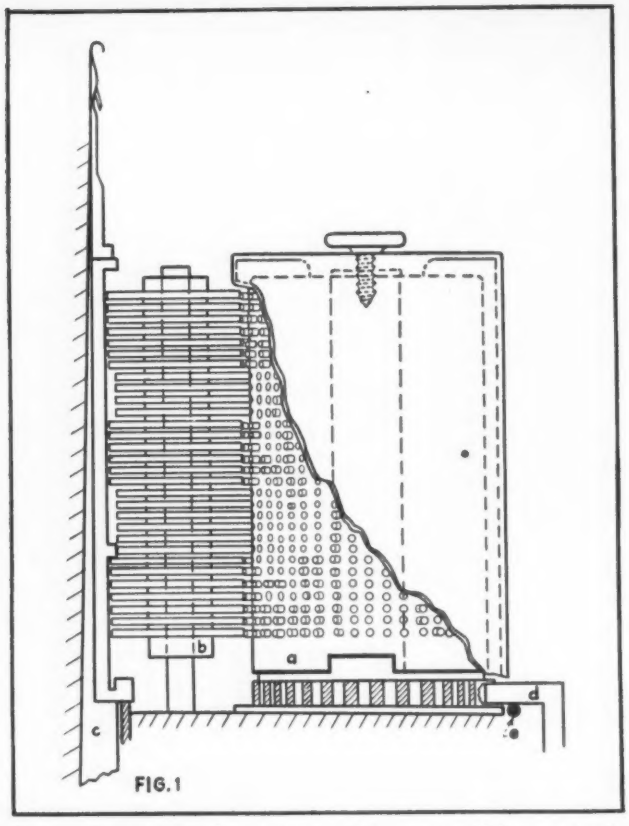
Goods dyed with the lighter direct colors respond satisfactorily to napping; but in darker shades, particularly sulphur colors, the cloth presents some difficulty in napping and additional care must be used. Satisfactory results are obtained, for example, with light shades of gold and pink; but blue naps poorly despite careful treatment.

GRAY GOODS. Gray goods are desized and treated to enhance their softness and absorption ability. Some napping difficulties are thought to be due in part to the fact that the gray

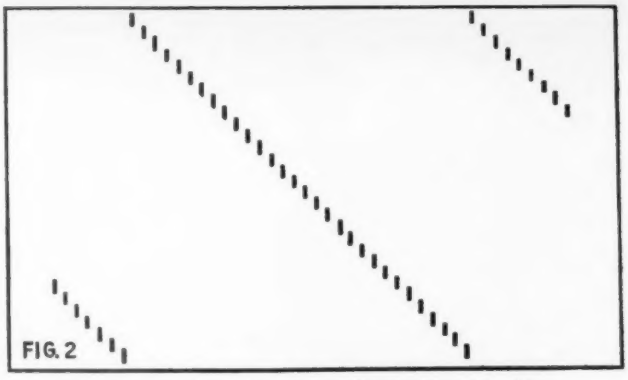
(*Continued on page 243*)



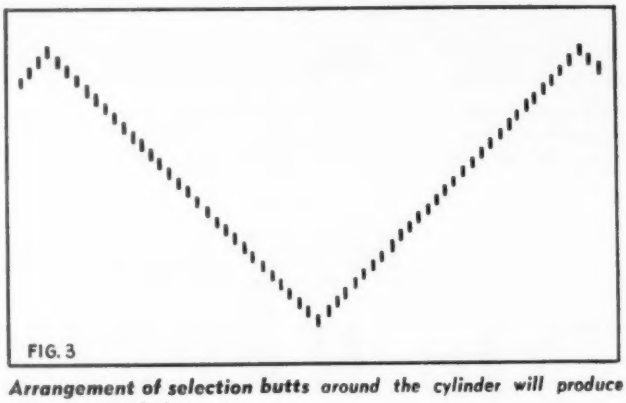
Grinding napper rolls is a job that requires the judgment of an experienced napper grinder. Grinding time and pressure against the emery are the deciding factors in skillful grinding. C. H. Church, overseer of napping, inspects the two rolls being ground.



Jacquard pattern drum accommodates pegs which actuate the knitting mechanism.



Simple method of setting selection butts is shown.



Arrangement of selection butts around the cylinder will produce mirror repeat designs.

Knitted Fabric Has Great Facility for FANCY PATTERNS

HIGHLIGHTS: *Quick pattern and color changes possible on circular knitting machines give advantage over weaving process for styled goods—Pattern drums can be replaced with minimum machine down-time—Greater pattern variety than normally needed is possible on knitting machines since drums may rack forward or backward or remain stationary.*

By **CHARLES R. CARTER, A. T. I.,** *Leicester, England*

KNIT FABRICS can expand into territory held by the fancy woven goods. Finishing techniques now give the medium- and light-weight knitted fabrics a handle and appearance in many cases superior to that of woven goods. The tendency of knitted fabric to lose shape can be largely overcome by the use of suitable stitch formations in conjunction with finishing methods. Changes to meet whims of fashion in women's sports and informal wear may be made on a knitting machine without any serious cost or loss of time.

Production is at a high rate, since a 30 in. diameter machine will knit 72 courses per min. on a three-color pattern. This machine produces a fabric 60 in. wide which will approximate 54 in. when finished ready for delivery.

VERSATILITY OF MACHINE. Machine versatility permits meeting off-season slump in demand for suitings by converting, if desired, to the production of wave or ripple cloth suitable for bathing suits. Even such a change is merely the work of a few minutes. Manual change of the dial cams from alternate selection to full knitting of all dial needles is all that is required following the normal changing of the peg positions in the pattern drums.

These drums are designed for easy removal for peg changing, but it may be convenient to keep several spare sets available so that as a run finishes, the new design is already assembled ready for placing on the machine. The cost of such a set of drums is quickly recovered by the reduced percentage of standing time.

For short runs involving color variations on the same design, knitting machines have an advantage over looms, as the operation for changing the entire color scheme is simply that of changing a dozen bobbins or cones and making one knot for each; as contrasted with a new warp and new filling on a loom.

Medium-weight knit fabrics may be

made of 1x1 rib in three- or four-color jacquard with bird's-eye backing. By this means, a very stable fabric can be produced.

DESIGN CONTROL. The design unit is sketched in Fig. 1 with the cover removed to show the rows of holes and pegs: **a** is the drum; **b**, the battery of levers; and **c**, the needle cylinder with selector jack having the selection butt at the eighth height. The racking mechanism is shown at **d**, with the control rod beneath at **e**, which is actuated from the main control chain. The pair of cranked levers **d**, are chamfered on opposite sides, so that the mechanism will rack either right or left in accordance with the position of the rod.

The drum in the selector unit here considered is drilled radially with 50 lines of holes and 30 holes in each line. Into these holes, short pegs are inserted in accordance with patterning requirements. This drum may be racked a distance equal to one or two lines of holes each revolution of the machine in accordance with the height of link on the control chain, or it may be reverse racked or retain a selection as long as desired. Each row of pegs in turn act upon the battery of levers, 30 in number and spaced opposite the pegs or holes so that each lever occupies a forward position when a peg is present or springs back against the drum when a peg is absent. Situated below each needle is a selection jack having a clearance butt to carry jack and needle to knitting position; also, a selection butt at one of 30 heights. These selection butts are depressed by the battery of levers wherever a peg and butt coincide; and these pass behind instead of over the clearing cam, and so do not knit at that feed.

One method of setting out these selection butts is shown in Fig. 2. This enables any needle out of the 30 in the design width to be selected; and, as there are 50 rows of holes, 50 different selections can be made if racked forward continuously. These would comprise 50 courses of the pattern if desired but could be increased by holding a selection for more than one course or by reverse racking. At the same time, it must be remembered that these units are repeated 12 times on a 12-feed machine; and, when knitting with three colors, four complete courses are made at each revolution of the machine, hence three courses will intervene between the courses knitted by the series of feeds 1, 2, and 3. The pattern depth is thus increased by the number of prime design feeds, namely $4 \times 50 = 200$ courses. Such a depth is perhaps unnecessary for sports knitwear design-

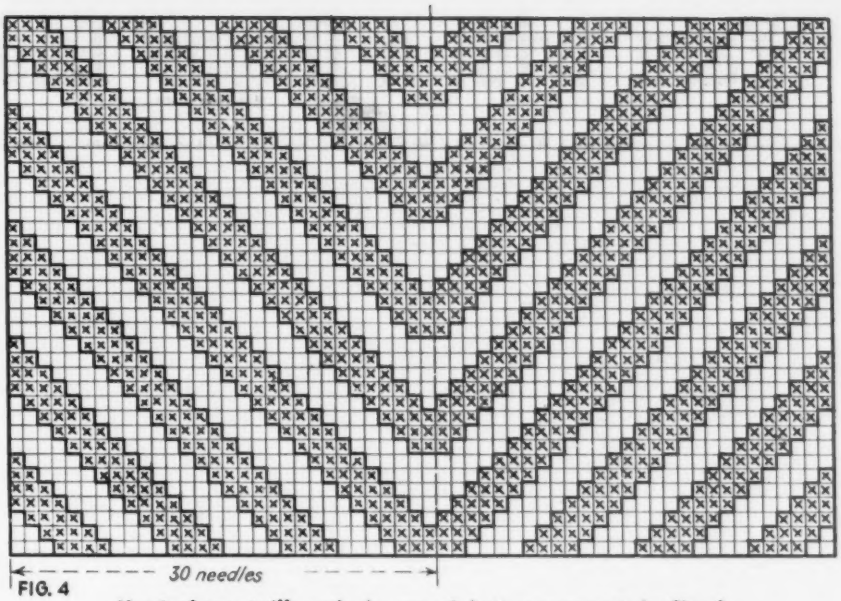


FIG. 4

***Herringbone twill** made by use of butt arrangement in Fig. 2.*

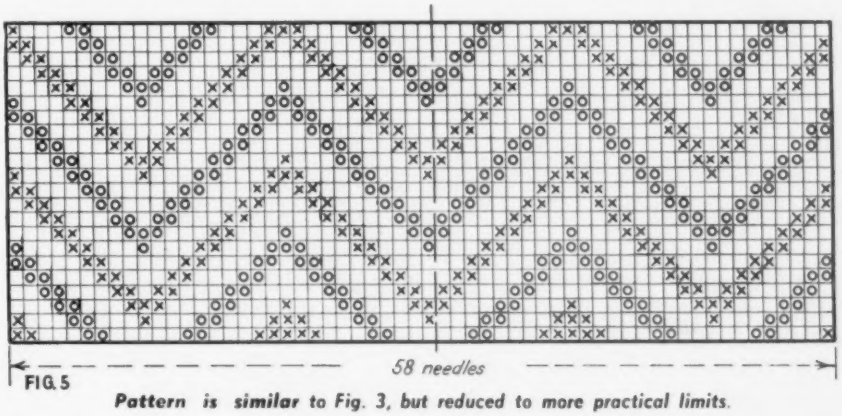


FIG. 5

Pattern is similar to Fig. 3, but reduced to more practical limits.

ing, but it is advantageous as it greatly increases the versatility of the machine.

MIRROR REPEATS. Reverse or mirror repeat designs are produced by setting the selection butts around the cylinder as shown in Fig. 3. This increases the design width to 58 needles and insures that the design repeats without trouble in a reversed manner; a simple example is provided in the herringbone-twill effect, shown in Fig. 4. The design is reduced to more practical limits in Fig. 5, where it is seen to be a multiple of the total design width.

The increased width is most advantageous when designing checks and plaids, as it gives more scope and at the same time simplifies designing since most of these patterns must repeat in reverse.

Materials Handling Exposition Scheduled for January

Second National Materials Handling Exposition at the Public Auditorium, Cleveland, Ohio, Jan. 12 to 16, 1948, will feature a conference on cost reduction through improved handling. Interest in the textile field will center on these discussions: arranging stock for effective handling; vertical, horizontal and inter-floor handling; planned packing for efficient handling; handling unusual shapes; when manual operations pay; safety principles in handling operations; standardization of materials handling equipment; and handling bulk products.

It is anticipated that approximately 180 exhibitors will show hand trucks, lift trucks, conveyors, hoists, monorails, portable elevators, stacking units, tractors, trailers, fork trucks, skids, pallets, as well as other types of handling equipment and accessories.

Yarn with a Happy Ending!

SUN TEXTILE LUBRICANT...

Cuts Dripping, Splashing and Spotting in Woolen Mill

Splashing and dripping of oil from gears, cams, bearings, and chains of different machines were reducing quality and increasing costs in a big Eastern worsted mill.

Spots in cloth could not be entirely removed by mechanical washers or by hand spotting, and on the spotted areas of cloth the dye would not take.

A Sun Engineer recommended that the mill change to a Sun lubricant specially processed for textile machines — one that adheres to metal parts. The mill changed over and now reports that dripping and splashing have been cut to the minimum. Washing and dyeing problems have disappeared.

The results in this mill are typical of those attained in many plants where Sun "Job Proved" lubricants are used. The Sun Engineer may be able to help you achieve similar lubricating economies. Call your nearest Sun office today or write Dept. T-12.

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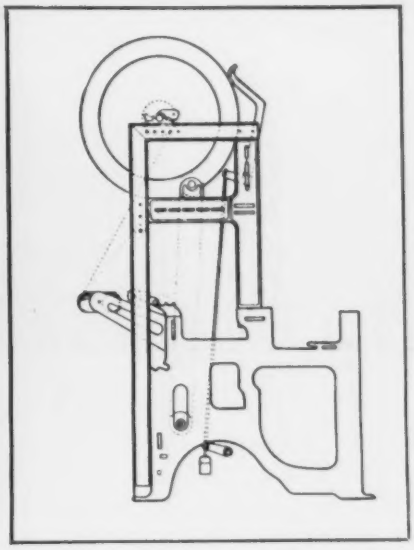
Discussion on weaving was held by H. M. Jackson, assistant superintendent, Fulton Bag & Cotton Mills, Atlanta, Ga.



Loom beams up to 48 in. in diameter are mounted above the looms as shown here.

Georgia Mill Reports on A 48-IN. LOOM BEAM

HIGHLIGHTS: *Huge beam is mounted on stands above the loom—Maintenance of electrical stop motion requires only 1% of loomfixer's time, Textile Operating Executives of Georgia report—One mill overhauls 18 looms at a time in a central overhauling room.*

A LOOM BEAM 48 in. in diameter when filled with yarn is being used experimentally at Pepperell Mfg. Co., Lindale, Ga., according to information revealed at the fall meeting of the Textile Operating Executives of Georgia, in Atlanta. The beam, mounted on special stands at the top of the loom, takes up no more floor space than smaller beams mounted on the loom in the usual manner.

The mill has an experimental room containing 14 looms, six of which are equipped with overhead beams of different sizes. The looms are located on the second floor of the mill building, and so far no adverse effect has been noted from this location. No change in humidity has been necessary.

The 48-in.-diameter loom beam was first equipped with a regular 6-in. wooden barrel, on which different flanges were installed; but after some experimenting, the mill increased the size of the barrel. A rope let-off is used.

This information, given during the oral discussion, supplemented written data sent in prior to the meeting in answer to eight questions on slashing [T. W., Nov., p. 145] and nine questions on weaving. The 17 questions were submitted to all Georgia mills prior to the meeting; and an official report of the written answers received from 25 mills—operating 1,182,204 spindles and 27,050 looms—were made public by the Textile Operating Executives of Georgia. Part of the written answers and part of the discussion at the meeting are condensed here.

Because of the interest in the question relative to overhead loom-beam stands, H. M. Jackson, assistant superintendent, Fulton Bag & Cotton Mills, Atlanta, who led the discussion on weaving, asked for remarks on this question first. The question was:

QUESTION NO. 17: *Do you have stands to hold larger loom beams over the loom instead of at the conventional place?*

Does the let-off work properly?

How is the weaver's job affected?

How is the fixer's job affected?

Please give all advantages and disadvantages of the idea.

Mill No. 10 wrote: "Besides cutting down changes of warps, larger beams can be used effectively without extra work of the weaver or loomfixer."

Mill No. 15: "We tried one loom with the beam on a stand at the back of the loom. We did not have any trouble with the let-off."

Mill No. 25: "We have been experimenting with this idea and have several looms equipped with beams over the looms. We have had no trouble with the let-offs so far. We do not believe the weaver's or fixer's jobs would be changed.

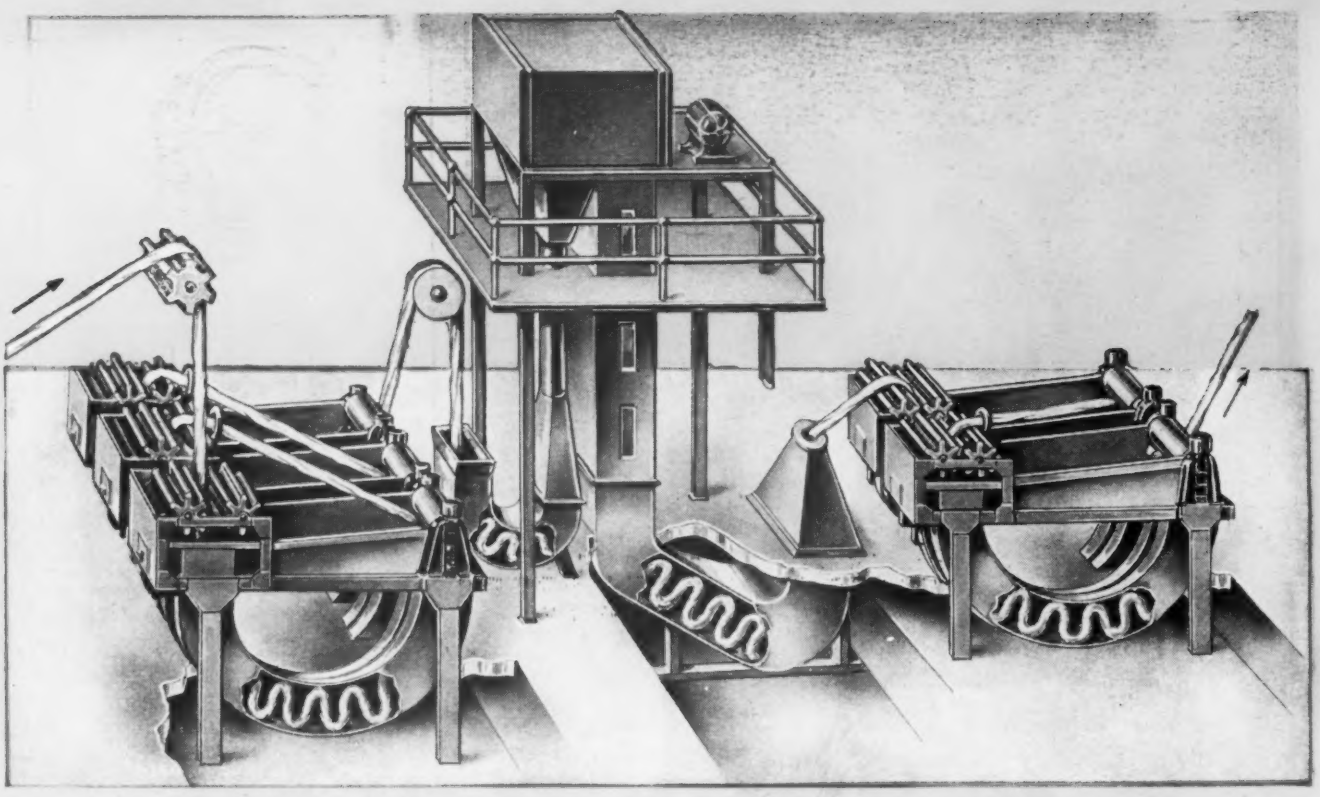
"Some of the advantages are:

1. Larger beams can be used without occupying more floor space.
2. Fixer can get to parts under the loom much easier.
3. Looms are easier to oil.
4. Looms can be oiled and blown off without danger of getting oil on the warps.
5. Space under the looms is easier to keep clean.

"Disadvantages:

1. Cost of installation.
2. Lighting will have to be rearranged in the room.
3. Slightly more trouble for the weaver when an extra end comes up on the beam."

A representative of Canton Cotton Mills, Canton, Ga., reported that they are experimenting with 20-in. beam



In this single stage Butterworth Bleaching Range for knit goods, cloth is wet-out, squeezed and impregnated with caustic soda. Cloth is then passed over a reel to minimize tension and fed into a special Steam Scray. After moving through a Steaming Tube, cloth enters the "J"-box where it is piled in uniform condition. It is pulled from the "J"-box and fed into Slack Washers, with piling and tension held to a minimum. This is followed by a final squeeze. The same equipment is used for the peroxide bleaching, with the caustic impregnator serving as the peroxide saturator.

Bleaches Knit Goods in 44-Foot Range

Wanted: 44 feet in your mill for a complete high production bleaching range for knit goods.

We want you to discover how knit goods can be handled gently and efficiently — with big savings in chemicals, time and labor — in the single stage Butterworth Bleaching Range.

At every step in the bleaching operation, tension is minimized. There are special piling and tension devices in the new high speed Butterworth Slack Washer . . . special reels and piling mechanism in the streamlined Butterworth "J"-box.

If you have a knit goods production of 30 to 40 thousand yards a day, get complete facts on this new single stage Butterworth Bleaching Range. Write us today.

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heads on 30-in. looms and 26-in. heads on 40-in. looms. No trouble has been encountered with the let-off. Weavers like the overhead beam better than beams located in the usual place, the fixer has fewer run-outs, production is slightly increased, space under the loom can be kept cleaner, and the loom is easier to oil.

However, smash hands have more trouble in getting to the warp.

Several questions were asked from the floor; and in answer to these questions, it was revealed that:

The quality of cloth woven from the overhead beam is about the same as that of cloth woven from a beam mounted in the conventional way.

One mill that is running a 36-in. beam ties the pattern on with a portable tying-in machine, as in the case of any other loom beam.

A mill that had trouble in mounting a large beam because the flanges hit the warp rack found it necessary to install arms on the back of the loom to widen the rack.

A tendency of the loom to rock was stopped in one weave room by counterbalancing the lay.

QUESTION NO. 9: *What is the best relative humidity and temperature for cotton weaving? State the type of goods being woven. Which is better: the old-type round-head spray or the atomizer type? Why?*

Data given in answer to this question are tabulated at the right.

QUESTION NO. 10: *What is the best method of preventing the loom from breaking filling, with particular reference to the shuttle and package? What type fur and bristle have you found most satisfactory? Do you use fur only, bristle only, or a combination of both?*

Mill No. 1 wrote: "Be sure that the package is not too large for the shuttle. Light should show between the package and the wall of the shuttle. When bristles are used, they should be placed at a 45° angle and should touch the top and bottom surfaces of the filling about ½ in. behind the tip of the quill. Care should be taken to see that equal tension is placed on top and bottom. Fur can be used on the sides to reduce sloughing. We use bristles and Australian opossum fur. In most cases, we use just the bristles; but in some instances we use a combination of fur and bristles."

Mill No. 2 wrote: "Always keep in proper adjustment the give-way fingers and transfer hammer of the magazine.

"The shuttle is a big cause of filling breakage; and to prevent filling breaks due to the shuttle, we have to keep

(Continued on page 207)

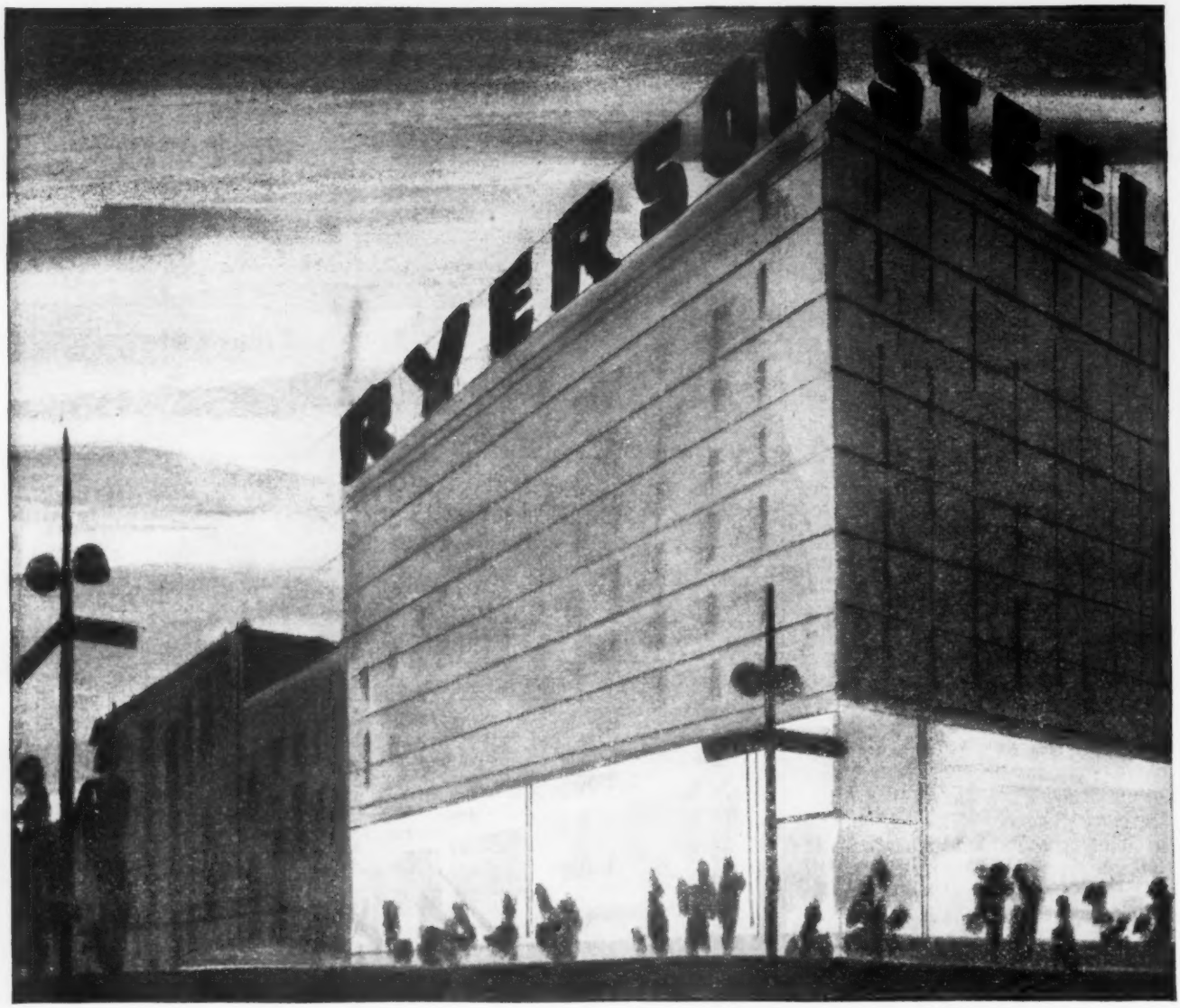
Data on Humidity and Temperature in 22 Mills

Mill No.	Relative Humidity (%)	Temperature (° F.)	Type cloth	Type spray
1	65	——	Jacquard	Atomizer
	80	——	Terry, huck, and crash towels	Atomizer
2	70 to 75	82	Terry towels	——
	80 to 85	82	Ticking	——
4	80	——	Drills, twills, sheeting, osnaburg	Atomizer
5	75	80	Gauze	——
	80	80	80x80	——
6	80 to 85	80	Twills, sateens, chafers, headlining	Atomizer
7	87	80		Atomizer
8	85 to 90	90		Round head
9	82	84	6- and 7-oz. two-harness fabrics	Round head
10	60	80	Two-ply and four-ply warp and filling	Round head
11	80 to 84	78 to 80	Chafer, hose, and belt duck	Round head
12	80 to 82	80 to 82	Sheeting	Atomizer
13	85	80	Heavily sized yarns	Atomizer
	80	80	Lightly sized yarns	Atomizer
14	80 to 85	80 to 85	Plain goods	Atomizer
15	75	——	Denim stripes and denim	——
16	85	85	Plain weaves, twills, sateens, jeans	Round head
17	82	80	2.50, 72x54	Atomizer
18	85	80 to 85	Drills, twills, sheetings, print cloths	Atomizer
19	78	80	Suitings	Atomizer
20	71	75 to 80	Duck	Atomizer
21	81 to 82	82	90 to 130 p.p.i., medium yarns, single ply	Atomizer
	85	——	25 to 50 p.p.i., coarse yarns, single ply	Atomizer
	80	80	18 to 36 p.p.i., medium yarns, plied	Atomizer
22	92	——	Drills, twills, sateens	——
24	80 to 85	——	4-harness twills	Atomizer

Humidity Test Results—Mill No. 25

R.H. (%)	Yarn Elasticity		Single-end stretch		Loom stops	
	Unsized	Sized	Unsized	Sized	Warp	Total
60	6.80	4.57	0.81	1.07	0.447	0.592
70	7.30	5.27	0.85	1.11	0.281	0.394
80	8.20	5.75	0.95	1.11	0.209	0.346
90	....	....	....	....	0.261	0.430

Cloth construction:
Yarn no. ..... 22s warp ..... 27s filling
No. ends ..... 73 per inch
Picks ..... 50 per inch



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RYERSON STEEL

Much New TECHNOLOGY Disclosed at AATCC Gathering

HIGHLIGHTS: *Rayon fabrics stabilized by two new techniques—Snag machine evaluates hosiery—Paste on printed cloth can be measured—Nylon staple opens new fields.*

PLASTICS IN THE TEXTILE FIELD

From "Plastics Materials that Supplement or Supplant Textiles" by C. W. PATTON, *Bakelite Corp.*

Product	Type of Plastic (or Resin) Involved	General Field of Processing	End-Uses
GROUP I—*(Plastics supplementing textiles)*			
Textile finishes	Urea-formaldehyde Melamine Vinyl acetate Vinyl alcohol Styrene copolymers	Conventional padding	Shrink—crush—and wrinkle-proofing; weave stabilization
Textile inks	Acrylate Cellulosic Vinyls	Conventional roller or screen-printing	General textile decoration Pad dyeing
Synthetic fibers	Cellulose acetate Polyamides Vinyl chloride-acetate Vinyl chloride-acrylonitrile Vinylidene chloride	Conventional	General fabric uses Specialty filter fabrics Collar interliners
Woven monofil fabrics	Vinylidene chloride Ethylene (experimentally)	Weaving	Seat covers Handbags Insect screening
Bonded-fiber webs	Vinyl acetate (binder)	Textile for base	Disposable cloths Diaper linings Bibs Shoe-wiping cloths
Coated yarns	Cellulose (nitrate aceto-butyrate) Vinyl chloride-acetate	Mixture of plastic and textile processes	Similar to uses for monofilament fabrics
Coated fabrics	Vinyl chloride-acetate Vinyl chloride Vinyl butyral Cellulose nitrate	Fabric coating	Rainwear Mattress covers Upholstery Sheeting Table cloths
GROUP II—*(Plastics supplanting textiles)*			
Tea-bag paper	Vinyl chloride-acetate	Textile	Indicated by product name
Coated latex impregnated papers	Vinyl chloride-acetate Vinyl chloride cellulosic	Paper Plastic	Table cloths Wall coverings Bibs Coverings
Plastic sheeting (10 mils thick and up)	Vinyl chloride-acetate Vinyl chloride	Plastic Textile printing	Upholstery Shoe-uppers Handbags
Plastic films (approx. 4 mils thick)	Vinyl chloride-acetate Vinyl chloride Ethylene (limited)	Plastic Texting printing and flocking	Rainwear Curtains Table cloths Spreads Garment bags

THE TECHNICAL INFORMATION disclosed at the annual meeting of the American Association of Textile Chemists & Colorists in Chicago was the most voluminous presented by a textile group in such a short period of time. Last month's TEXTILE WORLD carried abstracts of the intersectional contest papers. Following are some of the other 25 technical papers given. A later issue will carry still more.

A Simple Tester for Evaluating the Snag Resistance of Nylon Hosiery

EDWARD SMITH and THOS. D. JOHNSON,
E. I. du Pont de Nemours & Co., Inc.

A new, simple tester and method for evaluating the snag resistance of nylon hosiery provides results which correlate qualitatively with the performance of nylon hosiery in service tests. The method differentiates sharply between nylon stockings having excellent, fair, and poor snag resistance. Also, use of the test method expedites the development of a selected resin-type finish for nylon hosiery which has been shown by wear tests to improve the serviceability of nylon stockings.

The snag tester consists of the following parts: 1. A wooden base. 2. A slotted, adjustable wooden board resting on the base and held in position with wing nuts fastened onto screws connected to the base and extending up through slots. Attached to the front of the board is a ¼-in. diameter dowel stick, cut in half to supply a rounded surface. Projecting above the board are two flat-head screws. 3. A wooden bevel board with a sloping front which is clamped to the adjustable board and serves to hold sandpaper in position and to provide a standardized angle to guide the passage of the test stocking over the sandpaper. 4. Two flat wooden blocks held together at one end with a metal hinge and at the other end with a metal catch. 5. 3/0 sandpaper.

The procedure for carrying out the snag test is as follows: 1. An area on the boot about ½ in. below the shadow welt is marked on the hose by drawing two lines 2 in. apart and parallel to the shadow welt. 2. The welt is clamped smooth and flat between the two wooden blocks. The fashion seam of a full-fashioned hose forms one edge. 3. The stocking is placed on the exposed curved edge of the sandpaper at the mark closest to the toe and with the blocks hanging toward the floor. 4. The stocking is given a moderately rapid, steady horizontal pull back from the table edge over the bevel board so that the marked-off portion of the hose is drawn vertically over the sandpaper. 5. The wing nuts holding the bevel board and the adjustable board are loosened and the adjustable board is then moved backward. The

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Combination Starter

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SWITCH TYPE COMBINATIONS, either fusible or non-fusible, are also available in front-operated construction in sizes 0, I and II. Larger devices are side-operated.

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sandpaper is drawn tightly over the edge, thus exposing a fresh surface of the sandpaper for the next test. All wing nuts are again tightened to hold the sandpaper firmly in position. 6. The snagging action is repeated on the second side of the stocking. It is imperative that a new surface of sandpaper be used for each side of the stocking.

All marks on both sides between the two lines are counted without making any effort to grade the snags by types. Some of the marks which are counted in such a procedure will undoubtedly be abrasion marks, rather than distorted loops. To eliminate the abrasion marks and slight snags, the stocking is given a light hand wash at about 100° to 110° F. in a mild soap solution, followed by a rinse in warm water, after which the stocking is boarded on a heated metal hosiery form, and the number of marks present are recounted. The marks remaining after the hand wash are permanently distorted loops representing snags which would be likely to cause trouble during wear. It is convenient to use a black-painted, wooden hosiery form to support the stocking while counting snags.

Untreated nylon hose constructed with either 30- or 40-den. yarn in the boot usually develop from 6 to 16 snags per square inch against 3/0 sandpaper. A stocking showing no more than 0.5 snag per square inch is considered to have excellent snag resistance.

Permanent Finishes on Rayon

LEONARD SHAPIRO
Alrose Chemical Co.

The limited wash-resistance of some shrinkage-control methods for rayons has been overcome during the past year by the increasing usage of two new techniques based on caustic-swelling methods and an aldehyde treatment.

Stabilization of rayon fabrics by means of resins has been fairly successful on certain fabric constructions. Water-soluble urea-formaldehyde and melamine-formaldehyde condensates, and their methyl ethers, are most frequently used for this purpose. These are applied from water solution, together with an acidic or potentially acidic catalyst; they are then dried and cured by baking at elevated temperatures. The ketone-aldehyde resins cure with an alkaline catalyst and exhibit no chlorine-retention.

By proper control of temperatures, concentrations, and mechanical factors, rayon fabrics may be stabilized with caustic soda against further laundering shrinkage without damage to the fabric. This stabilization is accomplished without deposition of insoluble materials on the fibers and without chemical alteration of the cellulose. The caustic process is applied on a continuous range, consisting of a padder, a skying unit, and a series of open-width wash boxes. At caustic soda temperatures below 100° F., acetate-warp fabrics can be stabilized without saponification, and blends containing wool may be stabilized without loss in wool content.

The recent commercial availability of glyoxal, a di-aldehyde of low volatility, has paved the way for the development of practical aldehyde processes. Such a process is applied on the dyed fabric by padding with a 2 to 5% solution of glyoxal containing the required amounts of acidic catalysts and anti-catalysts. The cloth is framed, barely dried, baked at elevated temperatures, slack-washed, dried, and framed to predetermined dimensions. If starch, dextrin, polyvinyl alcohol, or soluble cellulose derivatives are mixed with the glyoxal padding liquor, they will react with the glyoxal on baking and form a permanent finish that will not wash out of the goods.

For producing crush-resistant finishes, monomeric urea-formaldehyde condensates or melamine-formaldehyde condensates are employed. Concentrations are about twice as great as required for shrinkage-control. Permanent sizing is now obtained by the use of thermoplastic resins, which are most easily applied in the form of a water-dispersion. The operation is simple and consists in merely applying the required amount of resin to the fabric and drying at 240° to 300° F. On bright rayon, many of these resin emulsions have a delustering effect which resists laundering and dry cleaning. The resin emulsions which find the greatest application to rayons are vinyl, acrylic, and styrene polymers and copolymers. The principal uses of these emulsions are: (1) as a general sizing agent to obtain a stiffer or fuller hand, (2) as a snag-resistant finish for hosiery, (3) as a durable delusterant and slip-resistant finish, (4) as a backing for carpets and rugs, and (5) to improve pigment binding in filling and weighting mixtures.

Perhaps the best-known of the durable water-repellents is chloromethyl stearamide quaternized with pyridine. Generally, a 5% solution of water repellent, containing 1% of sodium acetate produces satisfactory results. The solution is padded onto the fabric, which is dried and then baked at 275° to 400° F. The fabric is finally neutralized in soda ash and detergent and then dried at elevated temperature. Another durable water-repellent compound is the complex reaction mixture of a high-molecular-weight nitrile with formaldehyde, a wax-acid-chloride, and a tertiary amine.

Estimation of Vat Printing Paste on Cloth and an Electrometric Analysis of the Critical Chemical

H. E. M. SPECHT
Cranston Print Works Co.

Analysis of an actual sample of printed cloth for amount of printing paste present is carried out as follows: 5 to 10 grams of dry cloth (the amount taken depending upon the coverage) are cut into ½ in. squares, weighed accurately on an analytical balance, and soaked in 200 ml. of cold water for ½ hr. with frequent stirring. The resulting solution is filtered through coarse-textured filter paper to separate the fibers. Then ½ ml. of 6% sodium hydroxide and 20 ml. of 5% hydrogen peroxide are added to the filtrate; and the mixture is boiled gently for 10 min., or until all excess peroxide has been decomposed. Filtering through fine-textured filter paper at this point will in most cases remove all the dyestuff present in the extract, the particles having been coagulated sufficiently by boiling in a highly ionized solution. To the clear filtrate a drop of methyl red indicator is added, and the solution is carefully neutralized with dilute (1:2) hydrochloric acid and finally acidified with a slight excess. Subsequent operations involve nothing more than a standard gravimetric sulphate analysis with barium chloride.

The percent paste on a piece of cloth is easily computed by means of the following simple formula:

$$P_c = 59.7 \frac{W_b}{S_p \quad W_s}$$

where P_c = per cent wet paste on the cloth
W_b = weight of barium sulphate
S_p = per cent sulphoxylate in paste as made up in color shop
W_s = weight of dry sample of printed cloth

Nylon Staple in Hosiery

Dr. W. B. VINCENT
E. I. du Pont de Nemours & Co., Inc.

Nylon staple is produced with a crimp or crinkle which imparts loft to the yarns and to the fabrics knitted of these yarns. Since the crimp is essentially permanent, this characteristic of loft is maintained throughout the life of the fabric. The deniers now being produced are 1½, 3, 6, 10, and 15; and the staple length varies from 1 to 5 in. which makes it suitable for use on all the spinning systems. Also, nylon can be spun very well in blends with other fibers, including wool, cotton, viscose and acetate rayon, and silk.

Very heavy athletic socks and ski socks can be produced from blends of 6- and 10-den. staple. From there, knitters can go to a medium weight athletic sock in which, for the desired effect, 6-den. staple should predominate. The argyle sock is another place where some 6-den. staple is beneficial. A medium-weight dress sock is produced from 3-den. staple. The 6x3 rib, 200-needle Komet is essentially a new type of sock because it is lightweight, "warm," and durable. Also, a very lightweight, soft anklet for women and children can be made from a blend of 1½-den. and 3-den. staple. Fine yarns from 1½ den. should be very satisfactory in the feet of women's full-length stockings to give cushioning action. Also women's full-length stockings with a spun nylon yarn body will have warmth comparable to wool.

In blends with wool, greatly increased stability in washing can be obtained over an all-wool sock. Normally, about 65% nylon is required with a blend of nylon and wool to give sufficient stability in washing. However, if a wool shrinkage-resistance treatment is given to the socks, not so much nylon needs to be added for stability.

There are no particular precautions to be taken in knitting. In general, nylon yarns can be knit very readily into a satisfactory product. However, it is generally advisable that as low tension as possible and as loose stitch as possible be used in knitting nylon yarn to obtain the best products therefrom.

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1 *Oil cans and brushes needed by each knitter in order to lubricate his machine properly include: (1) a pint pressure can for oiling bearings, (2) a quart cup and brush for lubricating needles, and (3) a quart cup and brush for removing excess sizing from sinkers and dividers.*

2 *The pint pressure oil cup has a flexible spout for ease in reaching the bearing with the oil. This low-pressure can forces oil out at each side of the bearing.*

3 *This volume pump is used about once each four months for lubricating the bearings on the handwheel shaft with the proper semifluid oil.*

Full-Fashioned Machines Require GOOD LUBRICATION

HIGHLIGHTS: *Late-model, full-fashioned machines have more than 1,000 places to be lubricated — Three-point program insures proper lubrication—Constant inspection of oiling is necessary.*

By H. B. LeFEAUX

THE HIGH-SPEED, long, full-fashioned hosiery machines that are being built today require much more attention to lubrication than did the machines built in the past. Mills that have installed the newer-type machines should see to it that the men held responsible for oiling the machines do an adequate job.

High speed alone means more friction in the working parts. Therefore, oiling is more essential. Since more time is required to oil long-section machines (each machine has well over 1,000 places to be lubricated), the knitter may easily become careless and in the press of his other duties neglect to oil his machine properly.

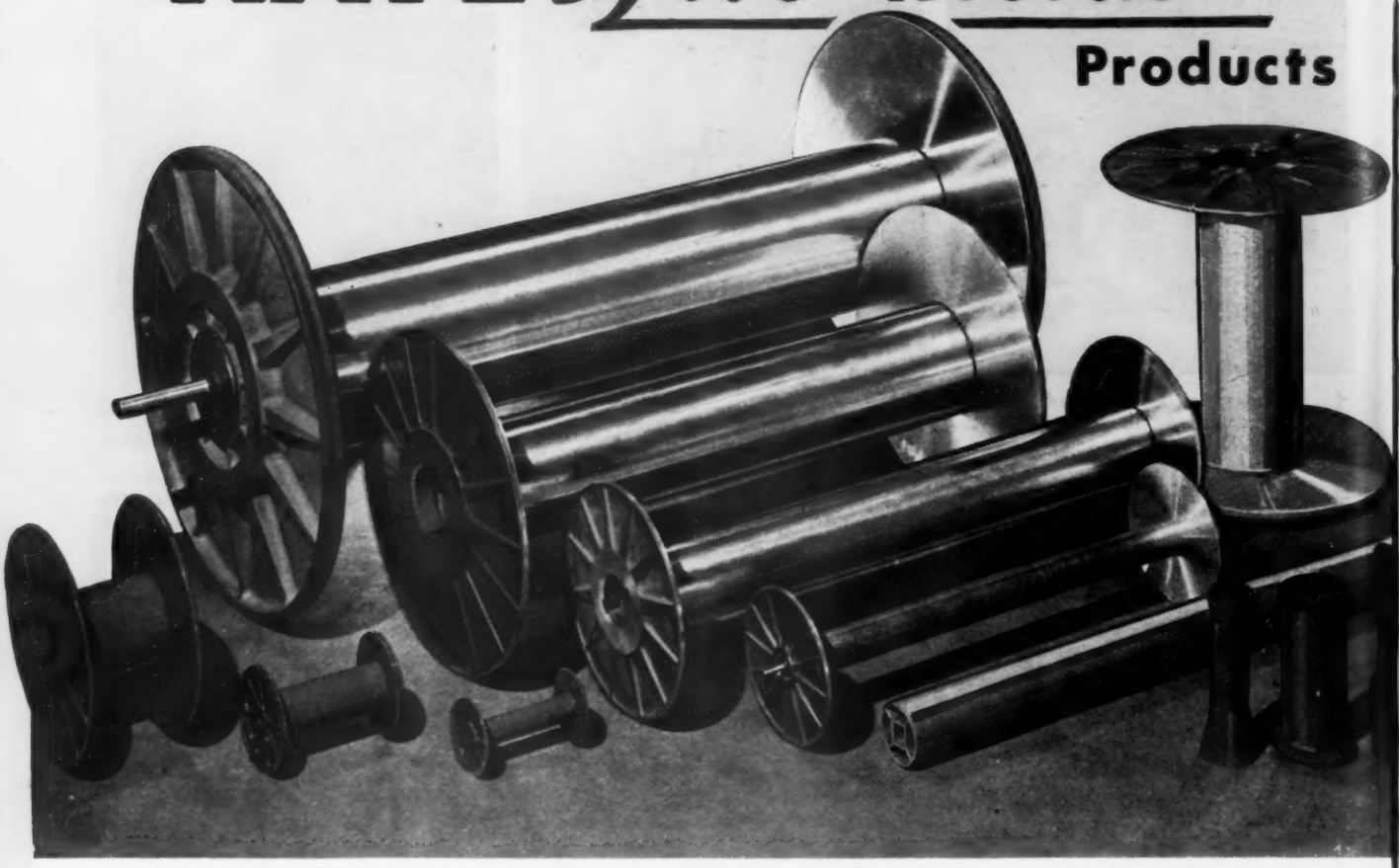
While some mills have crews of

(Continued on page 222)

Fig. 4. Oiling Schedule Used by One Mill

Part	Lubricant	Time
Needles, Narrowing points, Welt hooks, Lace points	Stainless needle oil with rust preventive added	Daily
Cam rolls, Carrier rods, Slur-cam-box bar, Driving chains, Presser edge	High-grade machine oil	Twice weekly
Sinkers, Dividers, Jack, Knocking-over bits	A mixture of petrolatum, amber color. Mix 1 part oil, 6 parts needle oil. Mix hot.	Twice weekly
Handwheel Shaft ball bearings	High-grade semifluid lubricant	Once every 4 months
Back catch-bar bearings with Oilite bushings	High-grade machine oil	Once every 3 months
Bearings with open oil holes	High-grade machine oil	Weekly
Coulier gear and pinion	High-grade calcium soap-base grease	Every 2 weeks
Coulier pan	High-grade machine oil	Every month
Friction shafts	Dixon's No. 385 friction grease	Check regularly

HAYES "lite-metal" Products



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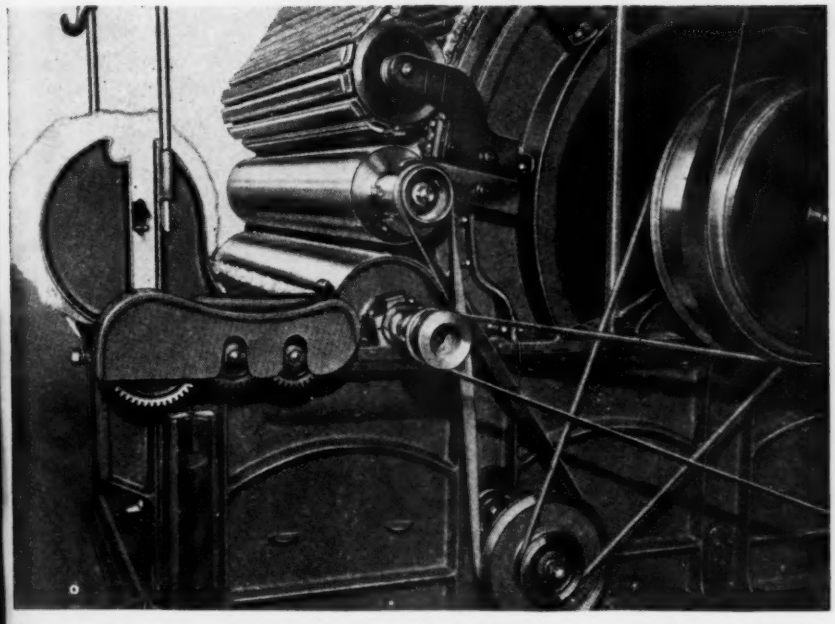
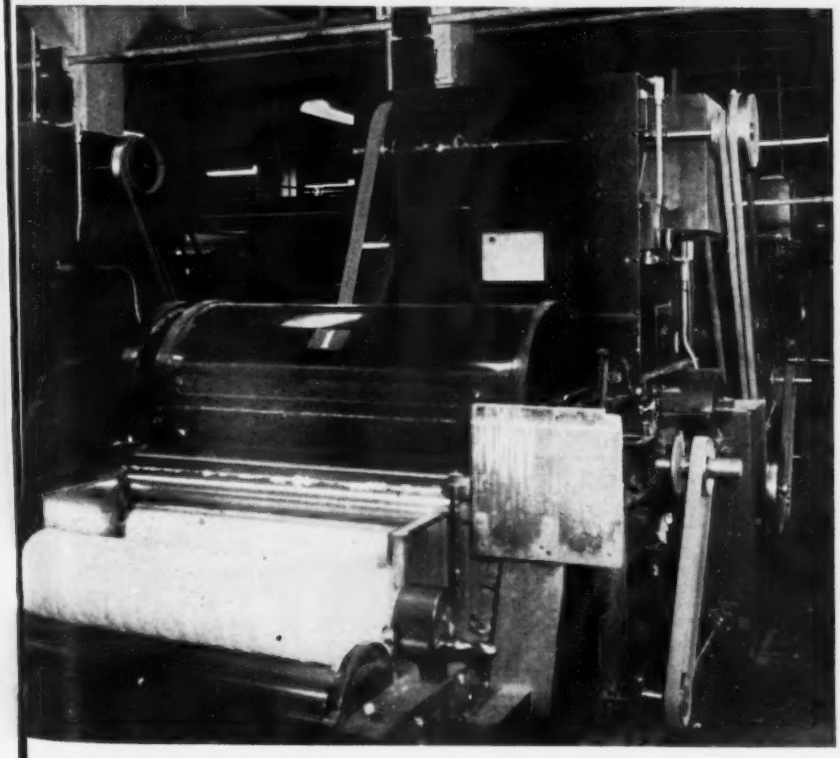
HAYES INDUSTRIES, INC. Home Office: JACKSON, MICHIGAN, U. S. A.

Alabama Mill Men Reveal CARDING PRACTICES



The continuous card stripper, *mounted at the back of the card between the lickerin and flats, must be run at a surface speed considerably greater than the surface speed of the cylinder. Otherwise, lap ups of the needle bars, inefficient stripping, and lowered quality of carding will result.*



lowing **all three picker beaters** *to 600 r.p.m., opening grid bars, and opening feed rolls o ½ in.—in addition to eliminating the vertical opener from the opening line—aided one ill in reducing neps in card webs.*

HIGHLIGHTS: *Surface speed of continuous card stripper is critical, Alabama Textile Operating Executives report — Reduced beating of cotton aids control of neps — Card tenders should not exceed ¼ lb. front waste and ¾ lb. back waste per card each 8 hr.*

CONTINUOUS CARD STRIPPERS, to operate successfully, must be run at surface speeds considerably greater than the surface speeds of card cylinders. Lap ups of the needle bars usually result from the surface speed of the stripper being too low.

This information was given at the Fall meeting of the Alabama Textile Operating Executives, in Montgomery, in answer to the first of five questions on carding and six on spinning. The questions were submitted to all Alabama mills prior to the meeting, and answers were given from the floor during the meeting. The questions and part of the discussions on carding practices are condensed for publication here. A report on the spinning panel of the meeting will appear in a later issue.

QUESTION NO. 1: *What has been your experience with continuous card strippers?*

Strippers are run at about 1,800 r.p.m. at Alabama Mills, Wetumpka, Ala., it was reported. At this speed, no trouble with lap ups is experienced. No difference in the breaking strength of yarn has been observed between stock run on cards equipped with the strippers and cards not equipped with them.

Cylinders at this mill are stripped with an auxiliary stripping system every 148 hr., and doffers are stripped every 8 hr. Cylinders are ground each 296 hr. of operation.

No trouble with lapping of the needle bars has been observed at Lanett Mill, West Point Mfg. Co., Lanett, Ala., a representative reported. The mill uses ⅞ to 1-in. staple cotton, spinning yarns ranging from 6s to 24s. The trouble that develops with the continuous strippers usually results from foreign matter, such as chewing gum, getting on the lap before it is

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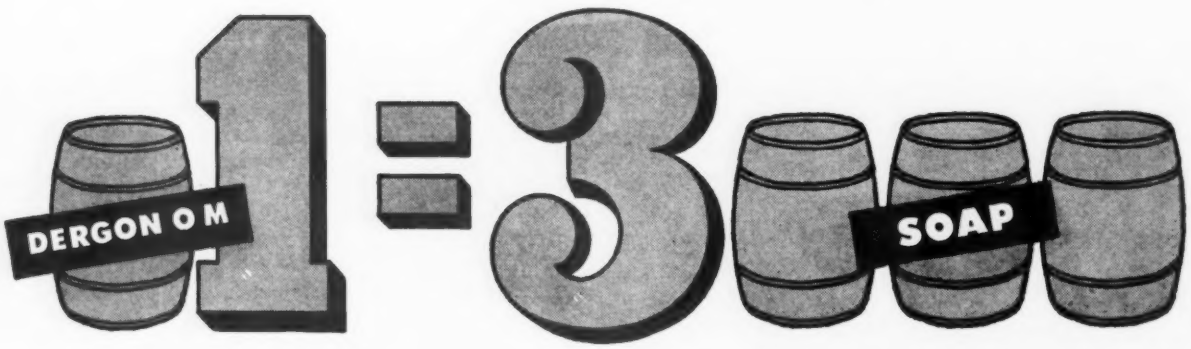

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fed to the lickerin. In such instances, bent or lapped needles result.

Cylinders of cards equipped with the continuous strippers are given an auxiliary stripping once a week and are ground each 230 hr. No difference has been noted in the quality of the carding or in the breaking strength of the yarn.

A small improvement in the amount of neps in the card web has been noted since continuous strippers were installed at Dwight Mfg. Co., Alabama City, Ala., it was reported. No lap-ups of the needle bars occur. The cotton used by this mill is $\frac{7}{8}$-in. Flat strips obtained from cards equipped with the strippers average about 1.5%. The mill has found the strippers quite satisfactory.

The strippers have operated satisfactorily also at Mt. Vernon-Woodberry Mills, Tallassee, Ala., it was said. No difference in the breaking strength of yarn has resulted from the use of the strippers. The mill uses $\frac{15}{16}$ and 1-in. staple cotton, spinning yarns ranging from 2.85s to 20s. The chief cause of lap-ups has been found by this mill to be too slow speed of the stripper in comparison with the speed of the cylinder.

Cylinders are given an auxiliary stripping every 480 hr., or oftener if necessary; and doffers are stripped each 24 hr.

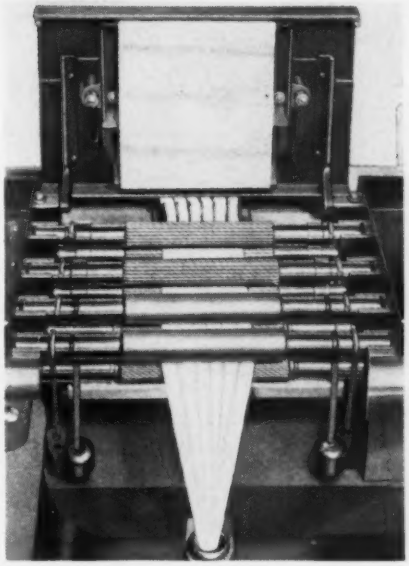
Strippers have been running 2 yr. at Alabama Mills, Greenville, Ala., it was stated. Considerable improvement on certain grades of cotton has been noted. Some trouble was encountered with lap-ups of the needle bars until the proper settings and speeds were determined. A slight improvement in yarn breaking strength has been observed.

A slight decrease in yarn breaking strength, as a result of using continuous strippers, was reported by Huntsville Mfg. Co., Huntsville, Ala. This mill has 181 cards equipped with the strippers. Some difficulty with lapping was experienced until the speed of the strippers was increased.

QUESTION NO. 2: *What experience have you had in reducing neps? What changes did you make in opening, picking, and carding in order to secure a reduction of neps?*

In the opener room at Russell Mfg. Co., Alexander City, Ala., grid bars were opened in order to permit motes to drop out of the machine better; and feed rolls were opened to $\frac{1}{2}$ in. The vertical opener was eliminated from the opening line.

In the picker room, all three beaters in the pickers—two blade and one Kirschner—were run at 600 r.p.m.; and the grid bars were opened. Feed rolls were opened to $\frac{1}{2}$ in. The mill runs $1\frac{5}{32}$- and $1\frac{1}{8}$-in. cotton.



***Metallic back rolls** for drawing were said at the meeting to give a better bite for breaking down the card sliver, while synthetic front rolls were said to give a softer, less-harsh draft. One mill reported, however, that up to 40% more production can be obtained by using all metallic rolls.*

Neps were reduced somewhat at Mt. Vernon-Woodberry Mills by reducing the rate of carding from 17 lb. per hr. to 15 lb. It was also found that the relative humidity around the cards had some effect on the amount of neps.

Another mill reported that eliminating the vertical opener from the opening line definitely reduced the neps in its $1\frac{1}{8}$-in. cotton. No machine was put in to replace the vertical opener.

In answer to a question from the floor as to whether or not perforated card screens help to reduce neps, the three mills that reported on nep reduction stated that perforated screens have no effect on the amount of neps. It was stated that the only benefit of the screens lies in reducing the amount of fly waste.

Neps are worse at some times than at others at Lanett Mill, it was reported. While good opening and blending of cotton are important in the control of neps, the deciding factor is the cotton itself. The better the cotton is, the fewer neps the card web will have. So far as the mill machinery is concerned, the critical point in preventing neps is the card. The sharpness of the clothing should be inspected frequently, and dull clothing should be ground. Card settings should also be accurately maintained.

It was stated as an opinion that carding Middling cotton for medium yarn counts at a rate of 7 to 10 lb. per hr. would help hold neps at a minimum.

QUESTION NO. 3: *What do you consider a fair amount of: (1) lap waste per card, (2) front waste per card, and (3) drawing waste per delivery?*

One mill reported that it allows card hands to make $\frac{1}{4}$ lb. of waste on the front and $\frac{3}{4}$ lb. on the back per card each 8 hr. Laps in this mill weigh $14\frac{1}{2}$ oz. per yd. and are 53 yd. long. A lap runs 4 hr. on the card. Drawing tenders are allowed to make 6 lb. of waste on 36 deliveries of drawing per 8 hr.

The amount of waste made by each operator is weighed daily and checked by the second hand and overseer. The waste is rerun through a waste hopper in the opener room. The amount run through the hopper per 8 hr. varies between 70 and 90 lb.

The back waste at the cards at Lanett Mill runs from 1 to 2 lb. per card per 8 hr., it was reported. The rate of carding is about 16 to $16\frac{1}{2}$ lb. per hr. On the front, the amount of waste runs from $\frac{1}{4}$ to $\frac{1}{2}$ lb. per card per 8 hr. The waste per drawing delivery on 65-gr. sliver varies from 0.50 to 0.66 lb. per 8 hr.

Another mill reported that each card tender has a separate container for waste; and once during the shift, the waste he has made is weighed and recorded. If the amount of waste is too high, the overseer or second hand talks with the card tender about it. Card tenders in this mill lay three 16-oz. laps per card each 8 hr. Approximately 1.32% of the card production is waste. Drawing waste runs about 0.63%.

QUESTION NO. 4: *Is it better to grind with slow or fast doffer speeds? Do you grind your doffers with stock running in the card?*

A slow grinding speed (about 775 r.p.m. of the traverse roll) is used at Mt. Vernon-Woodberry Mills, it was reported. Stock is not cut out during grinding of the doffer. Thus, there is no loss of production. Two doffers are ground each 8 hr. with the same grinding roll, the roll staying on each doffer from $2\frac{1}{2}$ to 4 hr. as needed.

The only time that this mill grinds a doffer at a fast speed is when the clothing has been damaged. When fast grinding is desired, the doffer is speeded up.

Slow speed is also used for grinding the doffer at Avondale Mills, Sylacauga, Ala., it was stated. The grinding roll runs at 750 to 800 r.p.m., and the doffer is not speeded up. The doffer and cylinder are ground at the same time and for the same length of time. On each third round of grinding, however, the cylinder alone is ground, so that over a period of time the doffer receives only two-thirds the length

(*Continued on page 200*)

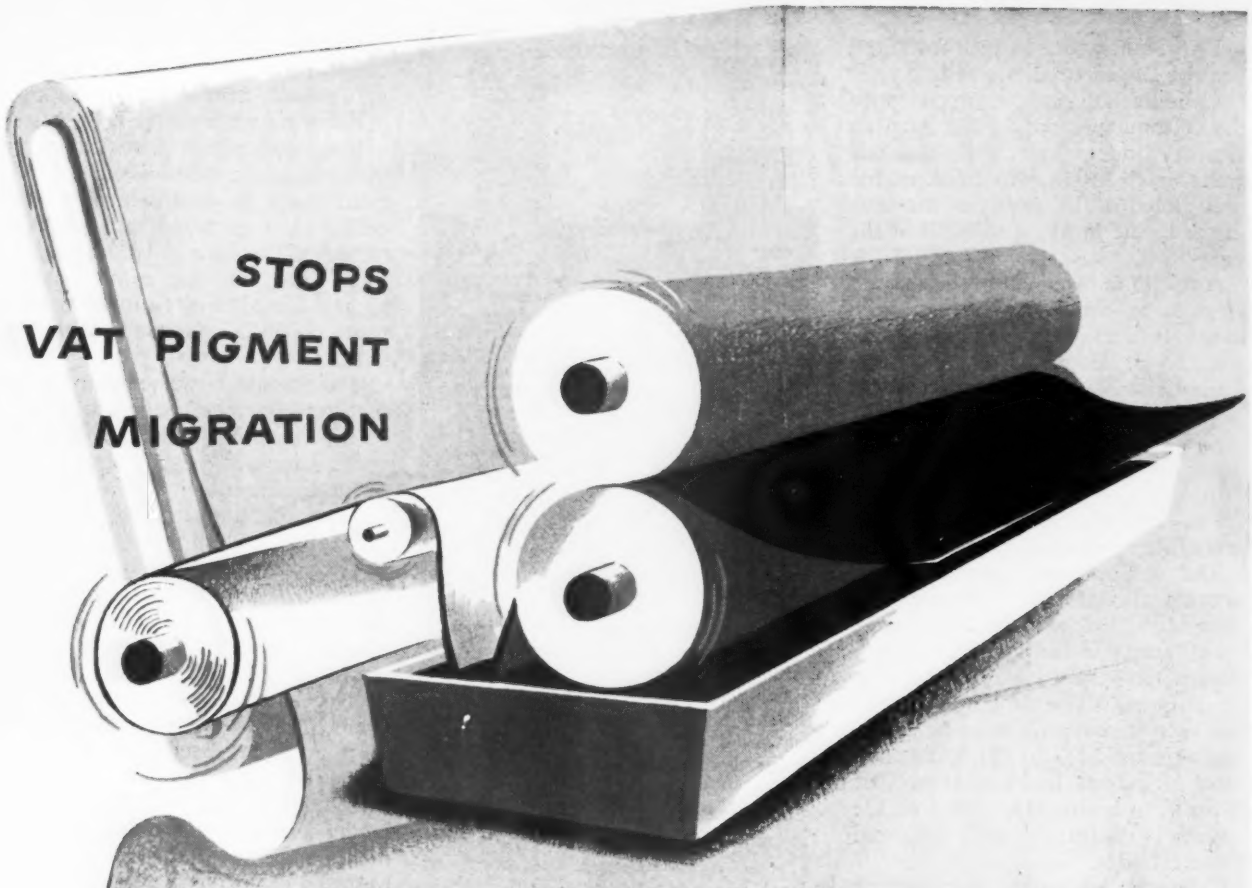


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Fig. 1. This 300-kva. multiple-unit, dust-tight capacitor installation saves $485 annually in demand charges.

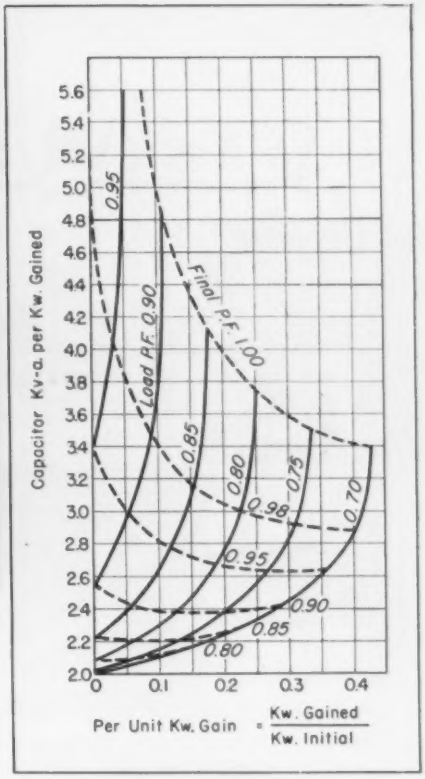

Fig. 2. Where magnitude of current is controlling factor, relation is shown between capacitor kva. per kw. gained and the increase in kw. carrying capacity which can be realized without increasing current magnitude.

HIGHLIGHTS: *Capacitors used in circuits with motors, transformers, etc. will reduce current used and make added load possible on mill's present wiring system—Most installations pay for themselves within two years—Curves show added load which can be made available—Automatic switching aids mill which has widely varying loads.*

POWER FACTOR Improvement Will Cut Mill's Electric Bill

By W. H. CUTTINO, *Westinghouse Electric Corp.*

THE COST OF ELECTRIC ENERGY can usually be reduced by using capacitors to supply the lagging kilovars. Magnetizing current is required in all textile plants to excite the fields of motors, transformers, etc. This current, although very necessary, does not produce useful energy and is out of phase with the power current which produces useful work. The adding of capacitors to supply this magnetizing current eliminates the handling of this extra current over the power supply system and reduces the generator and distribution capacity required for handling the load.

Utility companies install capacitors on their distribution circuits to release system capacity, reduce losses, and improve voltage regulation. These same improvements that occur on distribution circuits will usually occur in the textile-plant circuits.

Magnetizing current in a circuit affects the handling of electric power in two ways: first, it increases the energy loss in the circuits due to the higher current caused by the low power-factor which is reflected all the way back to the generating station; second, the magnetizing current, if relatively large compared to the in-phase or power current, depresses the voltage at the machine terminals. The depressing of voltage below normal on the motor terminals results in increased current and decreased torque or reduced efficiency.

POWER FACTOR. The term power factor is a method of expressing the proportion of in-phase or power current to the total current made up of the combination of power and magnetizing current. Most utilities have adopted the practice of taking power factor into account in the rates of electric service. These usually appear in the rate schedule in the form of a bonus for high power factor, a penalty for low power factor or a kva. demand charge. Substantial reductions in power bills have been effected with capacitors which in a large percentage of cases have saved the cost of the capacitors within the first two years.

To illustrates the savings that have been obtained by adding capacitors, one manufacturing company in Pennsylvania reduced its monthly power bill $453 by installing a 570 kvar. capacitor. This plant's demand was approximately 2250 kva. at 80% power factor, with monthly consumption of 567,000 kw. The 570-kva., 3-phase, 60-cycle, 2400-volt capacitor cost $5,581; but, with savings of $453 per month; the capacitor paid for itself in less than thirteen months. The capaci-

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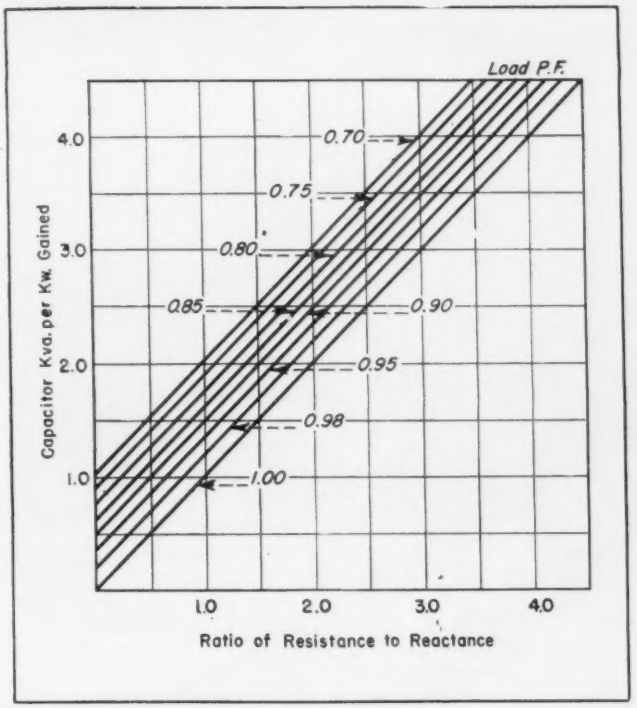

***Fig. 3. Where voltage drop** is controlling factor, curves show relation between capacitor kva. per kw. gained and the two determining factors, ratio of resistance to reactance, and load power-factor.*

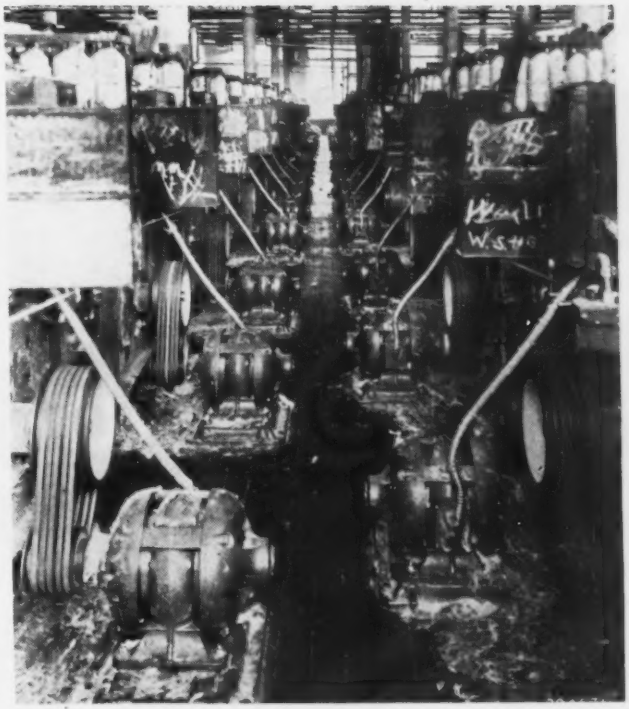

Fig. 4. By placing capacitors at the motor terminals and switching the capacitors with the motor, as is done in this textile mill, the maximum benefit is obtained from the capacitor.

tor is a static device with no moving parts; once installed and placed in service, it requires very little attention or maintenance. It is, therefore, obvious that the investment for this capacitor is very profitable. A similar installation is shown in Fig. 1.

In addition to the big item of reduction in power bills, capacitors can also be used to release capacity. If a textile mill's power-factor is low and the current-carrying capacity of the plant feeders limits adding load, then it will be found that the kilowatt or power-current carrying capacity can be increased by adding capacitors to supply the lagging kilovars or magnetizing current. For example, if there are eight motors of equal horsepower on an electrical circuit with an average power factor of 76% and if capacitors are installed to improve the power factor to 95%, two additional motors of the same size can be added with no increase in line current or line losses.

DETERMINE LOAD. The curves in Fig. 2 can be used to determine how much kilowatt of load can be added by adding capacitors without increasing the line current or line losses. For example, assume it is desirable to increase the kilowatt load 20% on a circuit without increasing the circuit current. Referring to Fig. 2 it will be obvious that a 20% gain cannot be accomplished if the load power-factor is already 85%. If the power-factor is 75% a 20% gain in kilowatts can be made by adding 2.38 kvar. of capacitors per kw. gained. If the installed cost of capacitors per kvar. is about $20 for 230-volt capacitors and about half that value for 460- or 575-volt capacitors, then the cost per kilowatt gained would be approximately $23.80 if the circuit voltage is 460 or 575 volts.

The effect of lead on the voltage of a circuit depends upon the reactance and resistance of the circuit and the size and power-factor of the load. For practical purposes the voltage drop can be determined from the kw. load or power current flowing through the resistance of the circuit plus the out-of-phase component or magnetizing current flowing through the reactance of the circuit. The voltage rise produced by the capacitor is the product of the circuit reactance ohms and the capacitor current, thus

$$\text{Per cent voltage rise} = \frac{\text{ckvar.} \times \text{circuit reactance in ohms}}{10 \times (\text{line kilovolts})^2}$$

The amount of plant capacity that can be released by adding shunt capacitors without increasing voltage drop can be readily determined from the curves Fig. 3. These curves were plotted for ease in estimating cost per kw., or kw. gained per capacitor kvar., that can be expected for different load power-factors and for circuits with different ratios of resistance to reactance.

Referring to Fig. 3 and assuming a ratio of line resistance to reactance of one for the circuit between the capacitor and the substation and an original power factor of 70%, it is shown that an extra kw. of load can be added to the circuit without increasing the voltage drop if 2 kvar. of capacitors are added. If the installed cost of capacitors per kvar. is $10, then the cost per kw. of load gained would be $20. This is usually much more economical than rewiring the plant to obtain increased capacity.

It should be kept in mind that the energy loss in any conductor varies as the square of the current flowing. If we assume a load power-factor of 70% with a power current of 70 amps., then the total current is 100 amps. The energy loss is increased not by the ratio of 70 and 100 amps. but by the ratio of 100^2 and 70^2. The loss at 70% power-factor is therefore more than double what it would be at unity power-factor.

INSTALLATION. Capacitors may be applied at different points in a textile mill's distribution system. The greatest benefits, however, occur when they are connected near the load requiring the magnetizing current, such as motor terminals. This reduces the current and losses along the supply feeders and also improves the voltage regulation.

If the motors are relatively small or if only a certain portion of the total motors is expected to be connected at one time, then it is usually more economical to locate the capacitors at the load centers.

In some instances, the plant load-

(*Continued on page 225*)

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LABOR POLICY Now Top Economic Factor, CTI Is Told

HIGHLIGHTS: *Currently prosperous state of textile industry hailed at annual meeting of Cotton-Textile Institute—Slichter calls current condition "dangerously good"—Wolman sees need for extra effort to maintain American labor policy while contrary to world trend—Murchison says textile industry possesses "unprecedented financial strength."*

VITAL INTERRELATIONSHIP between labor policies and economic developments was strongly brought home to members of the Cotton-Textile Institute by several of the speakers at the annual meeting in New York, Oct. 22 and 23. Added to this was the important point that now, while prosperity runs high, is the time to set the nation's house in order to meet whatever storms the future may hold.

Sumner H. Slichter, Lamont University Professor at Harvard, characterized the current condition of the American economy as "dangerously good." He mentioned two prime adjustments which must be made eventually in order to get the economy back to a kind of normal: (1) a change in price structure to return relatively high-priced farm products to a more reasonable balance with the relatively lower-priced industrial products; and (2) a drop in net export surplus, which may or may not be offset by a rise in domestic demand. Prof. Slichter expressed the hope that these two adjustments would be separated in time, but that they would come relatively early.

He listed a few things that should be done in the meantime to make the transition smooth: avoid a third round of wage increases, or, if unavoidable, make them in the form of insurance or pensions; postpone dividend increases, and use the surplus money in place of borrowing; purchase only those products which promise quick return in higher production per man-hour, and postpone any other expenditure; oppose reduction in income taxes now; encourage government to sell savings bonds to reduce its debt.

LABOR POLICY. The economic significance of labor policy was stressed by Leo Wolman, professor of economics, Columbia University, when he indicated that the U. S. is moving contrary to a powerful world trend. "Labor policy," he said, "no longer has the narrow limited objectives which were the feature of labor policy until recent decades. It is clear from developments in the United States since 1930, and from the much more rapid changes in Europe and England, that labor policy today is synonymous with total economic policy. Everywhere, except in the United States, labor policy involves the economic reorganization of society. This has not yet happened in the United States. For more than 10 yr. largely under the influence of labor problems and labor policy, we have been moving in the direction of government intervention, the making of fundamental economic decisions by the government, the identification of trade unions and their interests with the State.

"The last session of Congress set out to reverse that trend. That is the significance of the Taft-Hartley Act. Its major and underlying purpose was to strengthen and perpetuate the traditional American economic system—an economic system featured by private ownership, business competition, and cooperation between capital and labor. To make this policy work, it is necessary to restore, where it has been dissipated, flexibility in costs (including the wage rate) so that business can swiftly and effectively accommodate itself to changing economic and political conditions, domestic and foreign. It is necessary to reinforce the incentives to work which conditions, doctrine, and example have tended to weaken in recent years. It is necessary, finally, to protect the authority of management in a world in which much has been done to undermine and demoralize management."

OPTIMISM. Claudius T. Murchison, reelected president of the institute, was in general optimistic. "The industry will enter the year 1948," he said, "with unprecedented financial strength. There has been great wisdom in the disposition of industry earnings. For the most part they are being plowed back into corporate investment for purposes of re-equipment, modernization of methods, and research. It was essential that this be done, because for 6 yr. there has been a great paucity of new machinery, and this deficiency must be overcome if American industry is to hold its place in the postwar world of the future. In the preparation for that future, the industry is showing great vision. The general demand for our products continues with unabated strength at home, and in foreign markets the only limitation on the desired volume of business is the scarcity of American dollars."

"Despite this picture of the amazing well being of the American people and the American economy," he went on, "there is an undercurrent of uneasiness that has to do with other things than the immediate activities of our industry. It springs from this new and fearful emergence of two worlds. It portends for the near future, if not a military conflict, at least a gigantic battle of ideologies. The weapons are creeds and doctrines, hates and fears, conspiracies and intrigues. In this battle, the American business man must fight no less realistically and desperately than he fought in the war just ended. He must make sure that this country retains a stable economy. He must make sure that Americans as a whole know the operations of our economic system, and understand the inter-relationships of price, production, wages, and profits. He must also make sure that America comes truly to know the value of individual liberty."

(*Continued on page 232*)

NATIONAL SIGNIFICANCE

P. S. Howe, Jr., of American Thread Co., chairman of the institute's board summarized the institute's work of the last year in representing its branch of the industry at Washington hearings, in fostering style appeal of cotton, in supporting serviceable projects. He concluded, "Every question which is vital to the textile industry is vital to the nation as a whole. We cannot meet a responsibility as great as this unless our thinking and actions are lifted above group and regional interests in those matters which are industry-wide and nationwide in their significance."

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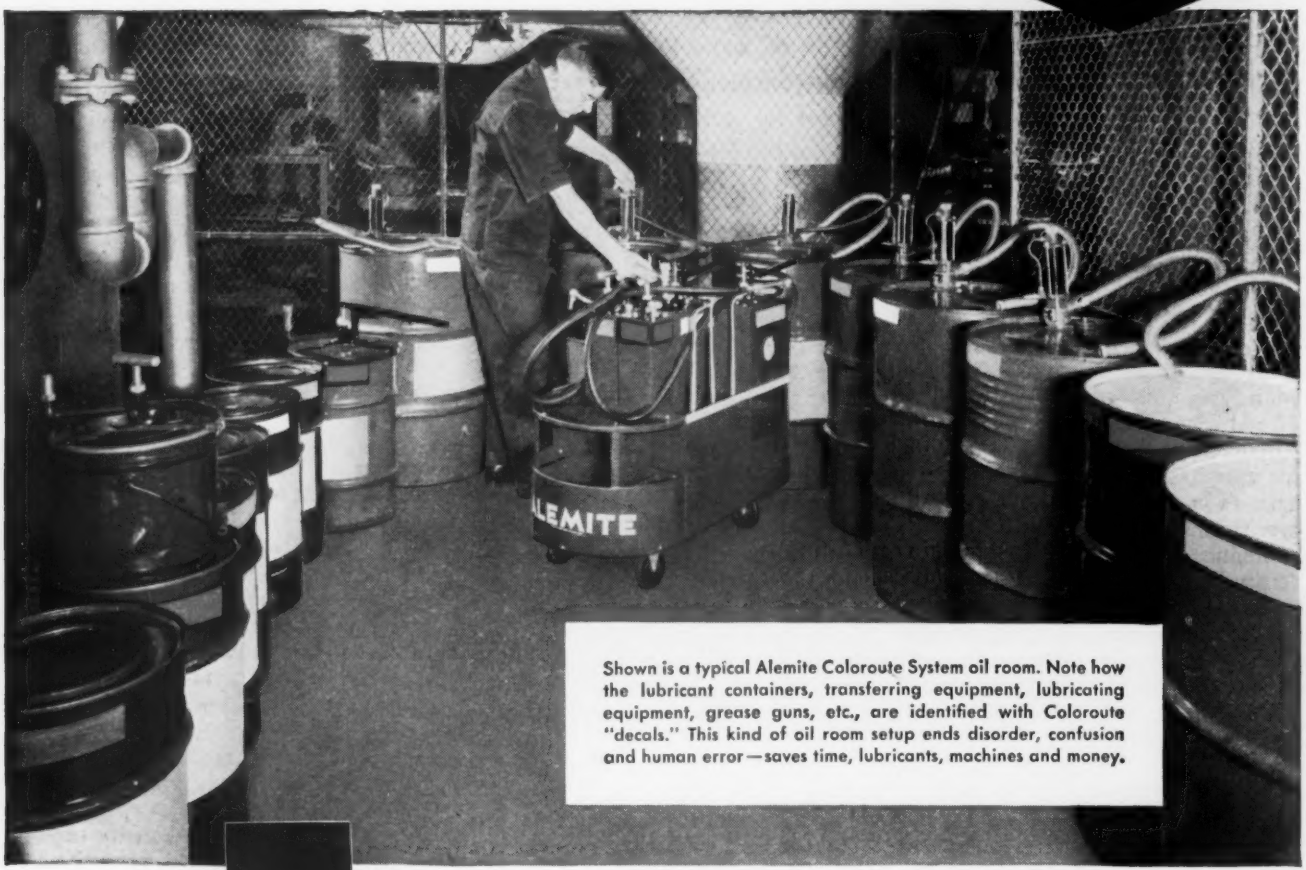

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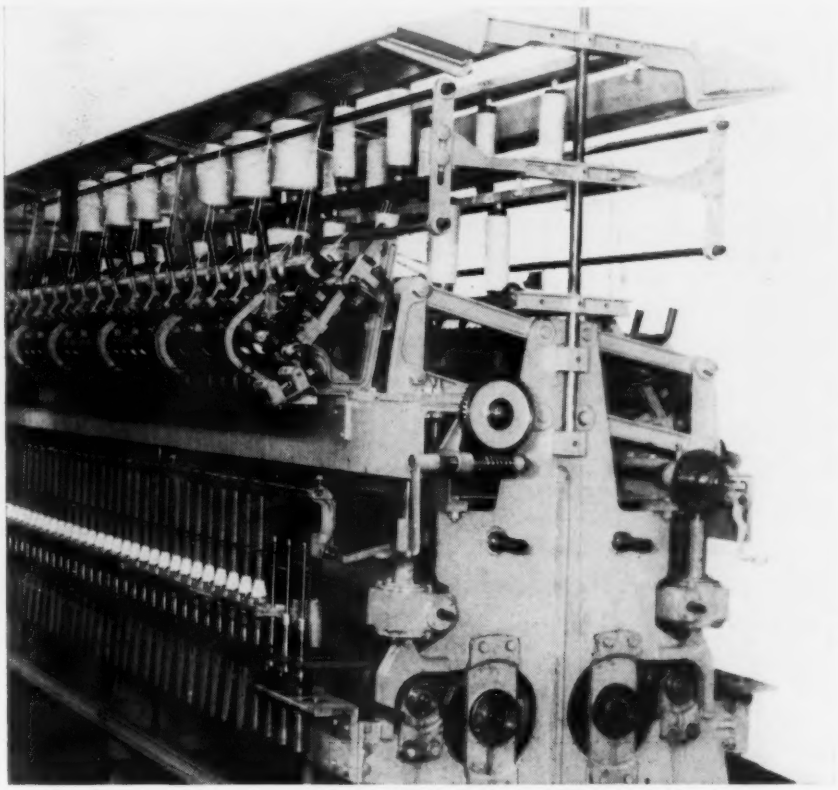
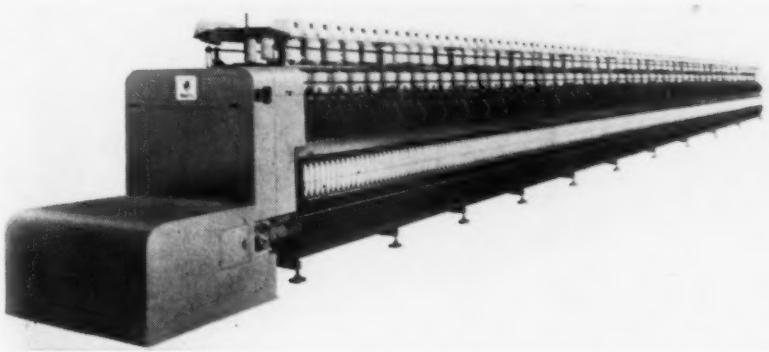
TEXTILE Equipment NEWS

Worsted Frame Has
RISING DRAFTING FIELD

HIGHLIGHTS: *New textile machinery builder enters field with improved worsted spinning frame—Cost reduction attained by high speed, larger package, and saving in floor space—Rising draft field maintains optimum balloon length—Yarns from 1/10s to 1/90s may be spun.*



A comparison of the position of the drafting field at the beginning of the bobbin (right) and in the final position (left).



Individual control over each 200-spindle side of the new spinning frame is an important time-saving factor.

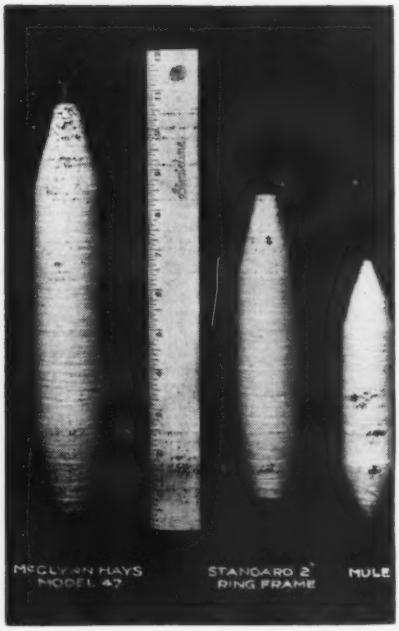
AN IMPROVED worsted spinning frame has resulted from considerable research in improvement of wool spinning methods with the prime objective of broadening the productive scope of the ring-spinning frame. The new machine is a French-type developed by a new textile builder, McGlynn Hays Industries, Inc., Belleville 9, N. J. The frame is capable of producing a range of yarns from 1/10s to 1/90s, it is reported.

The equipment incorporates many features which reduce operating cost by high speed, producing a larger package, and savings in floor space.

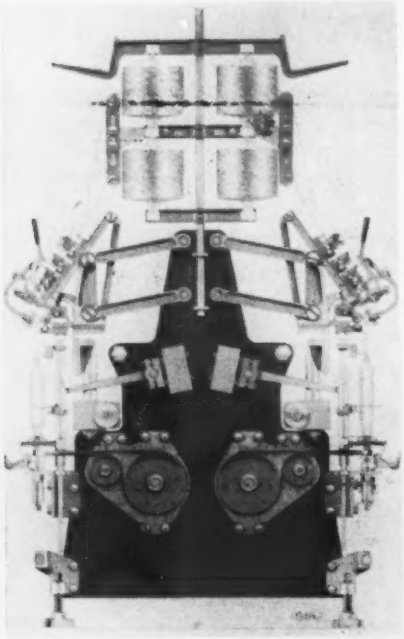
Of prime importance in the production of large packages at high spindle speeds is the necessity of maintaining an optimum balloon length during the entire build. The McGlynn Hays system attains this result, with complete freedom from vibration at substantially higher spindle speeds, by rigidly mounting the rotating spindles and driving cylinders, and by gradually elevating the slowly rotating fiber-control draft mechanism a total of 5 in. during the course of building the bobbin. This feature of the new McGlynn Hays system, while maintaining an optimum balloon throughout the entire cop, assures best possible conditions and at the same time provides a larger package by substantially increasing its length.

High draft is accomplished by the use of a patented six-line fiber-control drafting field. Drafts as high as 20:1 have been used to produce completely satisfactory yarns, although the manufacturer is not, for the present, willing to recommend drafts much in excess of 15. It has been noted that use of this high-draft system produces more uniform and lofty yarn than heretofore available.

The McGlynn Hays machine is equipped with an individual drive for each side of the frame providing maximum flexibility, and permitting doffing and adjustment of one side of the frame while the other side is running. It is built on a 3-in. pitch, with 400 spindles, 200 on each side; and produces a package of 10½ in. long. The



An increase in package size over both standard 2-in. ring frame and mule packages contributes to lower production costs.



The six line drafting field shown diagramatically permits better fiber control and consequent higher drafts.

diameter of the ring used is 2 in., a dimension selected as the most practical to produce the widest range of counts.

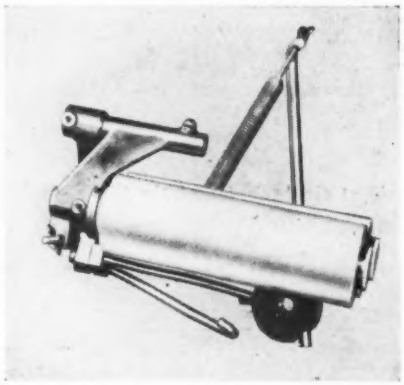
Ease of twist reversing is made possible by a gear transmission provided on each side of the machine consisting of a single-input drive shaft and two output shafts. One of the output shafts has one-way rotation for the main gear drive section; the other, a direct-coupled shaft to the spindle driving drums which includes a reversing lever mechanism for required direction of twist. A shift of the lever, and twist is reversed.

This frame is designed for smooth, continuous, high-speed operation. It will run at high spindle speeds without vibration, thus assuring smooth operation at all maximum practical spinning speeds.

To accomplish this high-speed operation and insure long life, all rapidly rotating parts are ball-bearing mounted using long life, high-capacity bearings; spindles are extra heavy and run in self-centering roller-bearing bolsters, complete with improved knee brake; all gears are precision cut. Tape drums are heavy-wall seamless aluminum tube and are dynamically balanced; tape drums and driving shafts are spline-connected, insuring maximum driving strength and easy removal. To insure permanent alignment, heavy structural angle spindle and draft rails are supported every 5 ft. by steel intermediate frames. The draft and all carrier rolls are heat-treated, have screw joints, and run in sintered-metal bearing blocks providing proper and continuous lubrication without the presence of surplus oil; weight rolls are chrome plated with a polished surface. These and many other details insure smooth, high-speed operation with a minimum of maintenance required.

An installation of the new frames at Forstmann Woolen Co. has produced over a 25% increase in draft, 25% increase in speed, and a 50% increase in bobbin size over the frames in present use.

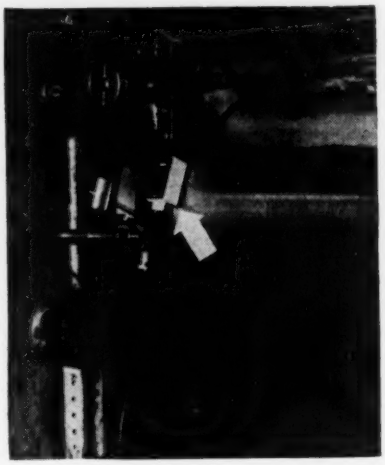
Improved Swing Guider Has Stainless-Steel Frame



Improvements in the Mount Hope swing guider include stainless-steel frame and roll shafts. (Mount Hope)

An improved swing guider and opener has been developed by Mount Hope Machinery Co., Taunton, Mass. The guider now has a stainless-steel frame which, the manufacturer claims, is stronger than the old frame, as well as lighter and corrosion-proof. Stainless-steel roll shafts are hardened and ground, increasing their life and lowering upkeep. Other features of the Mount Hope swing guider have been retained: mechanical operation with no electrical switches or coils and no air valves, only two moving parts, wide adaptability on all types of fabrics, positive but gentle control. The guider is also rust-proof, has reversible rubber rolls, two lifetime ball bearings in each head, and waterproof bearings.

Surface Temperature Controlled Continuously



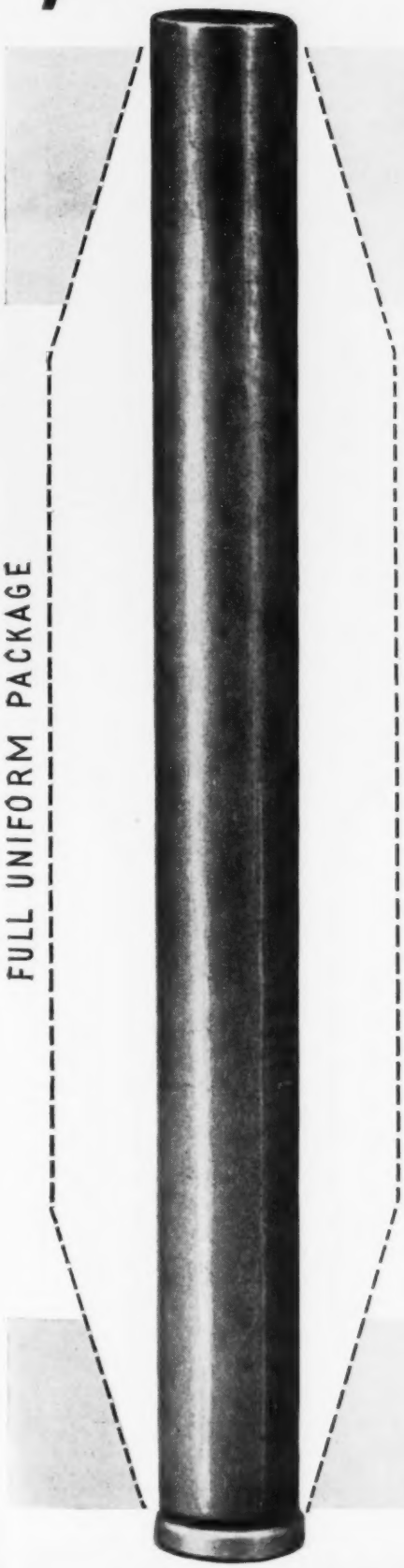
Roll-surface temperature controller insures maintenance of desired drying-surface temperatures. (Foxboro)

Control and recording of roll-surface temperature exactly and continuously is made possible by use of a new roll-surface heat-measuring head, according to the manufacturer, Foxboro Co., Foxboro, Mass. The measuring head rests against the roll surface and controls the temperature by regulating the steam pressure inside the roll. Both surface temperature and steam pressure required may be recorded. The head may be designed to remain in one position against the cylinder, or traverse across the cylinder surface. The sensitive element is, in reality, a miniature resistance bulb which has the highest sustained accuracy below 600° F. of any temperature-measuring element. The device is mounted on a block of Marinite for support, and to isolate it from all ambient temperature effects.

Swiss Warp-Tying Machine Demonstrated

The "Little Uster," a Swiss machine for tying warps is now available for export to this country and was demonstrated in several textile areas last

For easier doffing



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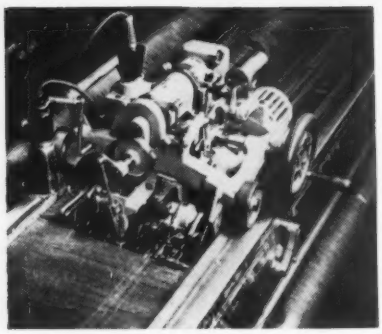


The "Little Uster" warp-tying machine can be used for rayon, cotton, wool, or other yarns. (Zellweger)

month by Dr. Benno Bissig, manager, and August Schuler, engineer, of Zellweger, Ltd., Uster-Zurich, Switzerland.

Three models of the machine (which sells for approximately $7,000) are available: one ties plain warps without a lease; one works with a lease; and a third can be used on warps with or without a lease. All three types are portable, and recommended use is with several frames for each tying head.

The "Little Uster" succeeds the stationary machine of which about 20 were in use in the United States before the war. It ties 200 to 300 knots per min. and handles yarn from fine rayons to coarse woolens. About 2,000 portable machines have been installed in 32 countries, but only now are they being made available in quantity in the United States.

A special frame holds the two sets of ends to be tied, one above the other; and the entire warp can be tied in one pass without interruption under optimum conditions. A pair of clever feeler arrangements keep both sets of warp ends in the proper position for tying.

Operation of the tying unit is as follows: Four lease tubes select the threads from the warps, two operating on the old warp, and two on the new warp. Brushes, operating in tandem on both warps, pull the threads back to the thread catchers. When the thread catcher has drawn the threads into alignment with a cutter and the knotter, a plunger-type clamp holds the threads of the two warps firmly in place. If the selecting device misses a thread or if a thread breaks, the machine stops immediately and automatically. The action of the cutter and the knotter is simultaneous. While the thread is being cut, a firm knot is being tied.

The machine is adaptable to any make of loom. Tying frames, wheel-mounted and adjustable to any required height, are built for the following maximum widths in inches: 47, 55, 63, 79, 98, and 118.

A sales and servicing organization in the United States is being set up by Dr. Bissig. Inquiries concerning the machine can be addressed to Zellweger, Ltd., care of Plaza Mills, 444 Madison Ave., New York 18, N. Y.

Simplex Tricot Announced by Reiner

A new simplex tricot machine has been announced by Robert Reiner, Inc., Weehawken, N. J. The machine was designed by Fritz Lambach, general manager of the company. It has a knitting width of 84 in., and 2¾- or 4½-in. shafts. Guide bars are supported on Oilite blocks, and spools are either sectional or full width. There is a hand wheel and shipper rod extending the entire length of the machine on both sides. The machine comes completely wired; and sley prints (30-33 gage), and cast or individual needles are optional. A predetermined rack counter and speedometer are mounted for easy visibility. The hand-wheel shaft and other fast-moving shafts are ball-bearing mounted, and use of heavy shafts throughout assures vibration-free movement of the knitting elements. Bars are fixed on their side location by measured stops on both sides of the machine. A heavy frame and heavy girts assure freedom from vibration and maintain good alignment. Main shaft supports are in oil-splash ring bearings, while all oscillating shafts and studs are supported in bearings lined with Oilite.

Cam rollers are equipped with needle bearings, with a patented lubricating drive to maintain an oil film on the cam surface and to wipe off grit and dirt.

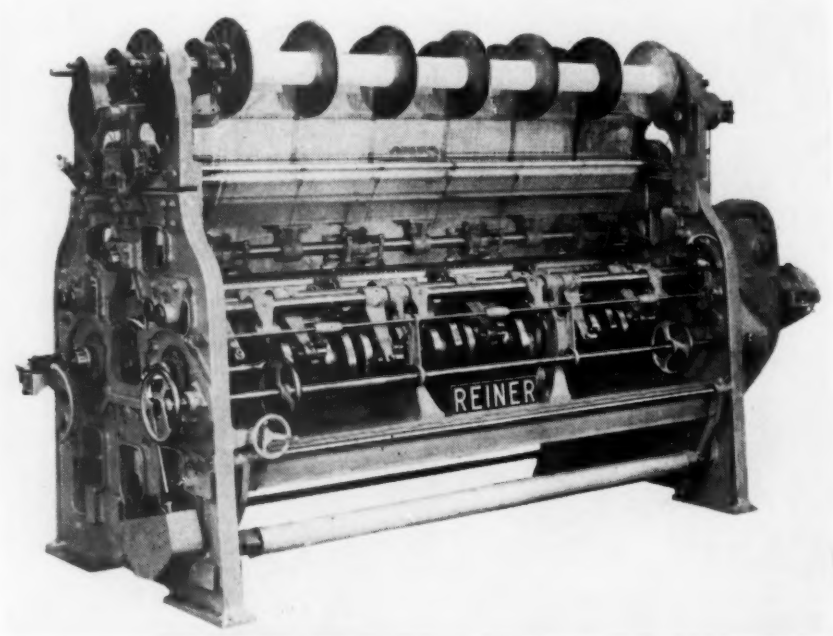
The beams, when mounted on the machine, rest on saddle supports. The beams disengage from the beam feeder by means of a hand knob operating a spring-loaded slide gear. The machine takes 14- or 21-in. beams, sectional or full width. Beams are driven by a completely inclosed beam feeding, oil-bathed device, which receives its power through a vertical shaft coming out of the gear box. The device has adjustable contact springs. All drive gears for the mainshaft are located in an oil-tight housing. The machine is V-belt driven by a 2-hp., 900-rpm. motor. A plugging switch can be installed for quick stops if so desired.

The pattern wheel is a plain jersey wheel or Atlas wheel, operated in an oil trough. Change gears are located in an oil bath. The retardation of the pattern wheel can easily be put in and out of action by means of a hand lever. The take-up roller covers the full width of the machine. The knitted fabric is protected against oil drops by an oil pan and by two layers of Plexiglas through the entire length of the take-up roller.

Yarn is fed to the needles over a cam-regulated tension tube operated in synchronization with the knitting cycle and over a floating tension tube which regulates the warp beam drive.

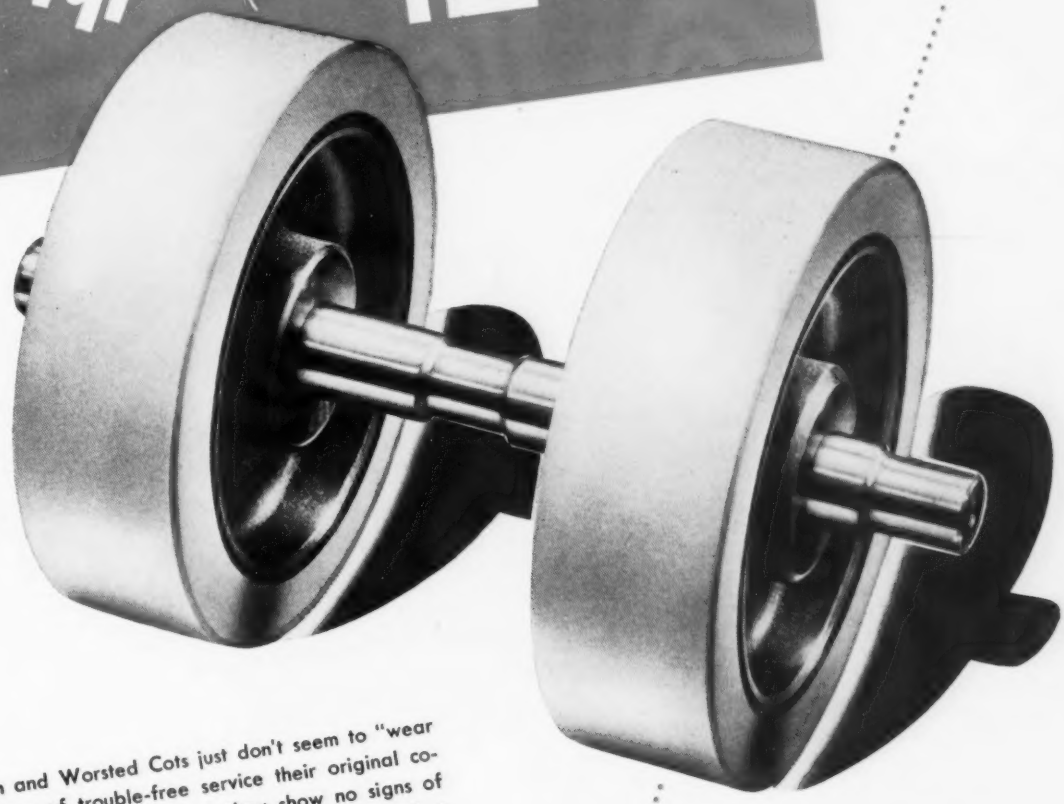
Monsanto Perfects Wrinkle-Resistance Gage

A new device for measuring the wrinkle-resistance of fabrics has been developed by Monsanto Chemical Co., 445 Park Ave., New York, N. Y. One end of a creased fabric sample is in-



New simplex tricot machine utilizes drive for beam let-off. (Reiner)

Daycos outlast other type cots 12 to 1



Dayco Woolen and Worsted Cots just don't seem to "wear out". After years of trouble-free service their original co-efficient of friction is retained . . . they show no signs of grooving or other deterioration, resilience is retained and they continue to produce more uniform yarn while outlasting other type cots 12 to 1. Made of special rubber compounds, Daycos are not affected by moisture, temperature extremes and other adverse operating conditions. These are but a few of the reasons why reports continue to come in from mill after mill—mill-proved records that prove Dayco equipped mills are enjoying lower production costs . . . greater production economy. Write today for additional information to:

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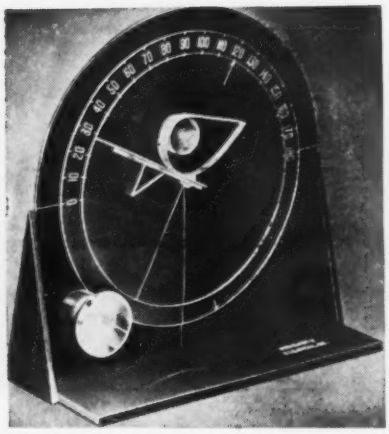


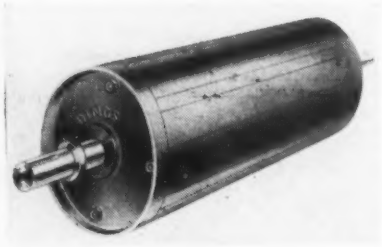
Wrinkle resistance of woven fabrics may be determined accurately by use of a new measuring device. (Monsanto)

serted in a jaw which holds it securely; the other end hangs free and is brought in alignment with a vertical line on the meter. The degree to which the free end recovers after a few minutes suspension is measured on the meter to show the actual amount of recovery. The device can be adjusted to correct the differential in various fabric weights.

The new tester overcomes all disadvantages of present testing methods, it is claimed; and establishment of standards for wrinkle resistance was foreseen as an end result. The device was developed by Dr. R. F. Nickerson, research chemist at Monsanto's textile laboratory. Wrinkling characteristics of woolens, worsteds, cottons, and rayons may be measured.

Cotton fabrics made and treated for wrinkle resistance by Dan River Mills, using Resloom C, showed a 70% increase over the wrinkle recovery of the original untreated fabric, it was claimed.

Magnetic Pulley Removes Tramp Iron

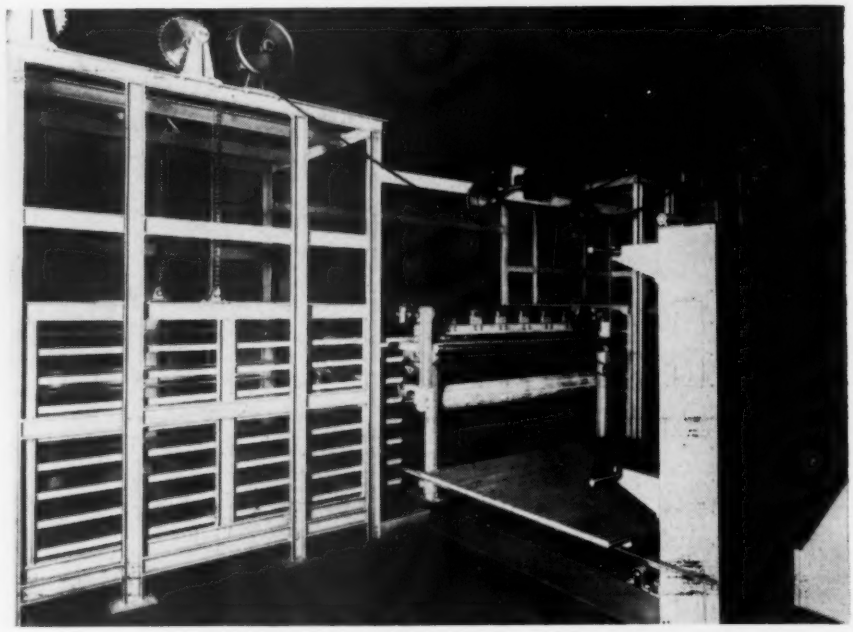


Tramp iron is removed from fiber carried on a belt conveyor over or under this magnetic pulley. (Dings)

The Perma-Pulley, a new permanent magnetic pulley with Alnico poles designed by the Dings Magnetic Separator Co., Milwaukee, Wis., is available in 53 sizes ranging from 12-in. diameter x 12-in. width to 30-in. diameter x 60-in. width. Designed for use as a head pulley in a belt conveyor system or as a self-contained magnetic pulley-type separator unit, the magnet is used to remove iron and other magnetic substances automatically from fibers carried on a belt. Being of permanent magnet construction, no electrical wiring is required. The manufacturer guarantees the magnetic permanence forever provided the magnet is properly used.

The Perma-Pulley has a crown face to prevent belt weaving and to aid even distribution of the burden across the belt as it passes over the pulley. Shaft diameters are standard to permit replacement of non-magnetic head pulleys in existing installations without changing bearings or shaft mountings. Head plates of the pulley are non-magnetic to prevent collection of magnetic material on the outside edges. A narrow gap design is used with non-magnetic gap plates between the poles and equal magnetic strength across the full width of the belt.

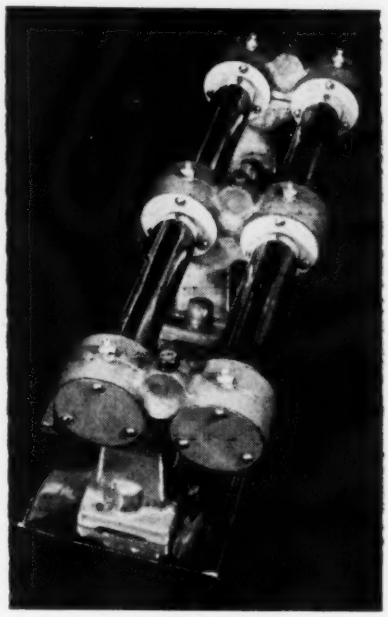
Mechanical Printing Equipment Available



Equipment for mechanical screen printing without the use of long tables (T.W., Oct., 1947, p. 236) is now being manufactured by J. A. Kjellberg & Soner, A.-B., Gothenburg, Sweden, according to Hancock & Buchanan, Washington 6, D. C., U. S. agents for the company. Stencils are moved on a track from movable shelves to the printing surface; and the cloth, after printing, moves in successive design lengths beneath the table to a drying oven.

Twister Rolls Have Chrome-Plated Finish

The ball-bearing, chromium-plated twister-roll assembly made by Knox Metal Products, Inc., Waynesboro, Ga., is reported to have a capacity of 30 times normal load. It is designed to replace worn and damaged rolls and to overcome undesirable qualities of the conventional roll assembly.



Rust and corrosion of twister rolls are eliminated by use of a new chromium-plated roll. (Knox)

Because of the properties of the hard chromium with which the roll is plated, wear, rust, and corrosion are eliminated. It is reported that the roll will not nick or burr, is not damaged by wetting solutions, and withstands abrasion of any fiber or cord.

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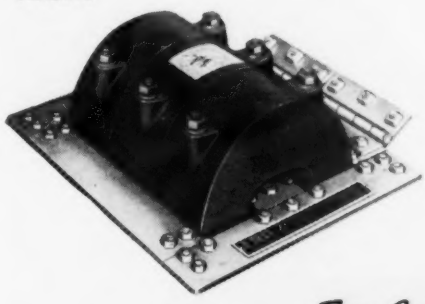

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ating costs are claimed because of the fully enclosed self-aligning ball bearings with which each bottom roll is equipped. The interchangeability of parts and ease of assembly reduce parts cost and maintenance time.

Driving connectors have tolerances in ten-thousandths, and the bearings are SKF internal self-aligning type housed in a fully sealed cast-iron stand provided with Zerk grease fittings. Individual rolls can be removed without disturbing others, and each part is interchangeable with the corresponding part of other roll assemblies.

Resin Treatment Improves Fiber Strength

A new process for improving fiber characteristics by chemical modification of its structure has been announced by Yanda Industries, Box 5087, Cleveland, Ohio. An average increase in tensile strength of from 50 to 200% for any known natural or synthetic fiber is claimed, as well as production of various color characteristics. The process is not yet commercially established, but publicity indicates that it is commercially practical. Exact conditions for most effective treatment remain to be determined by plant test.

The Yanda process is based on the discovery that the bonding properties of both cellulose and non-cellulose fibers are improved by pretreating with a penetrating, organic, non-acid chemical—a partially polymerized penetrating resin solution. Following this step, the fibers are treated with resin-forming chemicals capable of reacting with the first penetrating resin that is within the filament, roving, yarn, or cord. The product is a fiber transformed by the process into a product with properties fundamentally different from before.

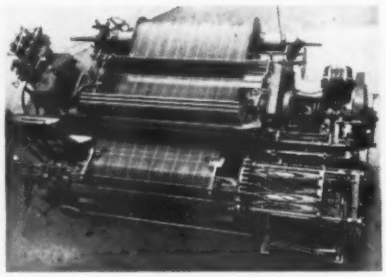
The fibers are the structure in which the resin is carried; and, within the limits of how well different fibers can be treated, one fiber may be substituted for another or used for purposes for which it was not previously suitable.

The process is controllable, it is claimed, both chemically and mechanically to such an extent that the original filaments, roving, yarn, or cords may be made to possess a wide variation of new characteristics and in a wide range of varying degrees. No shrinkage and addition of only 5% by weight are claimed.

The Yanda process line consists of five basic steps—the dip tank; the pretreating, impregnating unit; the dryer; the radiant infra-red unit; and the radio-frequency curing unit—as illustrated in the accompanying flow chart.

Potential future applications of the process include treatment of low-grade cottons, treatment of cotton to make it more suitable for tire cord, and new finishes.

Shuttle-Changing Loom Introduced in France



(McGraw-Hill World News) A French manufacturer, Ateliers Diederichs, Bourgoin (Isere), has built a four-color silk or rayon loom which provides automatic replacement of the shuttles. The loom also features low construction, with consequent avoidance of oil spots; a center-fork stop motion; a special oscillating feeler; and special automatic control of the shuttle boxes. A number of the machines are in use in France and elsewhere in Europe.

Pocket Calculator Aids Quality Sampling

A pocket-size calculator useful in sequential sampling has been announced by Lightning Calculator Co., Inc., 496 Atlantic Ave., Brooklyn 17, N. Y.

The calculator is simple enough to permit an inexperienced operator to use it in connection with the inspection of any production item. The calculator tells the operator how many

***Quality control** by sequential sampling is aided by use of this pocket-size calculator. (Lightning)*

samples to take, how long to continue sampling, and finally indicates whether the lot should be accepted or rejected.

Sequential sampling is based on a tailor-made program drawn up to meet the inspection needs of the user. If a plant already uses sequential sampling, the calculator can be calibrated to fit the existing standards, or a sequential sampling program may be developed by consultation with a quality-control statistician.

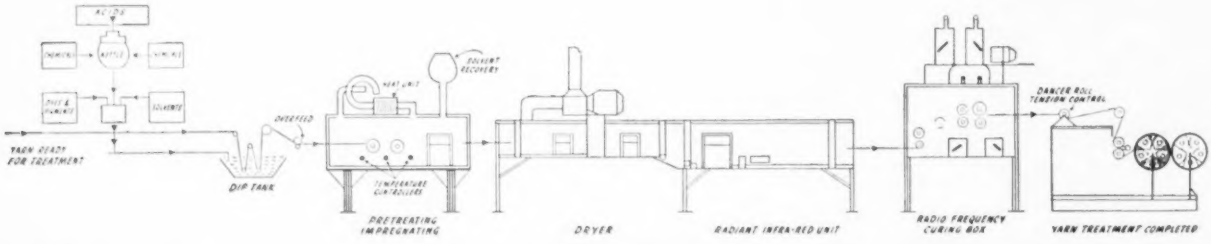
The calculator functions on the basis of five factors of quality control: (1) acceptable quality level, (2) unacceptable quality level, (3) factory risk, (4) customer risk, (5) average outgoing quality limit.

The calculator can be supplied in either metal or plastic and is printed in three colors.

More New Swiss Machines Available

Several Swiss machines which have no direct counterpart manufactured in this country are being offered by Zellweger, Ltd., of Uster-Zurich, Switzerland. They are a "denting" (reeding) machine, a "reaching-in" (handing-in) machine, a "dropper-pinning" (drop-wire dropping) machine, and a "dropper" (drop-wire) selecting device; all four units are for use in drawing-in warps.

The reaching-in unit, which can be used alone or in conjunction with the



***A five-step process** of fiber modification is claimed to yield increased tensile strength and other improvements in properties. (Yanda)*

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If rocketing construction costs have brought you budget problems, let Koppers pressure-treated wood solve them. In applications from foundations to roof decks, it brings *present savings* in building costs—*future savings* through long, trouble-free life and low maintenance.

PERMANENT FOUNDATION WORK. Koppers pressure-creosoted piles provide high load-bearing capacity at low cost. Preservative treatment permits cut-offs to be safely made above water table.

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DECAY-DEFYING ROOFS. Wherever humid atmospheres create a decay hazard, Koppers pressure-treated wood provides essential protection for long dependable service.

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PITTSBURGH 19, PENNSYLVANIA

denting and dropper selecting devices, does the operation usually performed by handing-in hands where they are used to hand warp ends to the drawing-in hand. The machine can also be used, of course, to speed up the work of drawing-in hands alone.

The reaching-in machine is built in two models; Model I is for use with plain warps that do not have a lease. Model II is for warps that have a lease. Both models select ends to be drawn and position them so that they are in a convenient position for the drawing-in hand. Model II can be set to select more than one end at a time if desired. Either can be used as desired for drawing in drop-wires and/or heddles.

The denting machine will reed any number of ends that are fed to it and will handle reeds up to 130 dent. It is mounted on a frame so that rereeding on the loom can be accomplished when that operation becomes necessary. For low-harness work, the denting machine can be used in conjunction with the reaching-in unit; but for work requiring many harnesses, some operators prefer to use the denting machine after the harnesses have been drawn.

The dropper-pinning unit is available for those mills who prefer to drop their drop-wires, instead of to draw them. This machine replaces much of the hand operation necessary to perform the operation. It can be used on up to six banks, as desired.

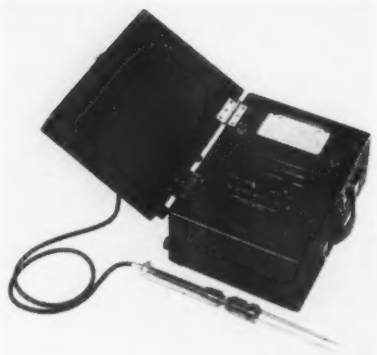
The dropper-selecting device is always used in conjunction with the reaching-in machine when harnesses and drop-wires are drawn simultaneously. It also handles up to six banks.

The manufacturer points out that the four machines are designed to operate with conventional drop-wires, heddles, and reeds.

Inquiries concerning these machines can be sent to Zellweger, Ltd., care of Plaza Mills, 444 Madison Ave., New York 18, N. Y.

Moisture Content Determined Instantly

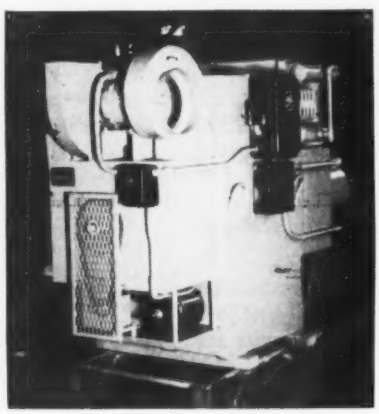
An instrument which electronically determines moisture content of textile fibers and products has been developed by Thwing-Albert Instrument Co., Penn St. & Pulaski Ave., Philadelphia 44, Pa. Operation of the meter is based on the variation in resistance to the flow of electric current with the moisture content of material being tested. Current flow through the meter is amplified by use of an electronic circuit, and readings are indicated on a scale reading directly in terms of percent moisture. Tests are



Instant moisture-content readings for textile materials are obtained by use of this electronic tester. (Thwing-Albert)

made by pushing the points of a probe into the material under test, or holding the points against a surface. Indication is immediate. No dangerous voltages are employed anywhere in the instrument. Comparisons made between moisture meter readings for paper and oven test results of the same material showed a maximum difference in the range of 1% in the range 7 to 25% moisture, the manufacturer reports.

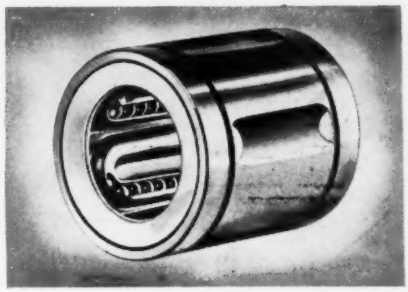
Excessive Moisture Removed by Dehumidifier



Humidity is closely controlled by combining this dehumidifier with the humidification system. (Pittsburgh Lectrodryer)

The Lectrodryer, a device for partial dehumidification of large volumes of air, with flow rates ranging from 350 to 15,000 cu-ft. of air per minute, has been developed by Pittsburgh Lectrodryer Corp., Box 1766, Pittsburgh 30, Pa. The equipment may be combined with humidifying equipment to maintain any desired amount of humidity in the air. Air is dried by passing it through beds of activated alumina. A valve mechanism within the machine delivers air to be dried to the alumina beds while directing another stream of heated air through moisture-laden beds to reactivate them. Beds are continuously and automatically cut out of service and reactivated when they become moisture-laden. The machine may be gas, steam, or electrically powered.

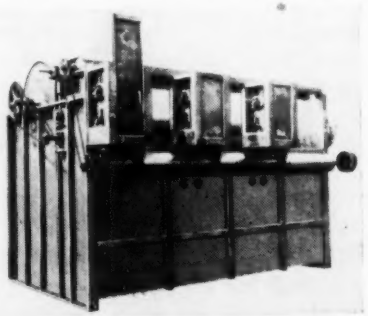
Bearing Carries Two Types of Motion



A new line of unlimited-travel, anti-friction ball bearings for linear or reciprocating motion has been developed by Thomson Industries, Inc., 1029 Plandome Rd., Manhasset, N. Y. The new bearings, series A ball-bushings, are designed for low-cost, high-speed production, and contain only three basic parts in addition to the balls. Bushings for shafts of ¼, ½, ¾, and 1-in. diameters are now available; and production of other sizes is planned. The new bearing has an extremely low friction coefficient, it is claimed, which prevents cocking and binding; and its free-rolling action maintains precision alignment by elimination of wear.

Slack Washer Has Partitioned Tank

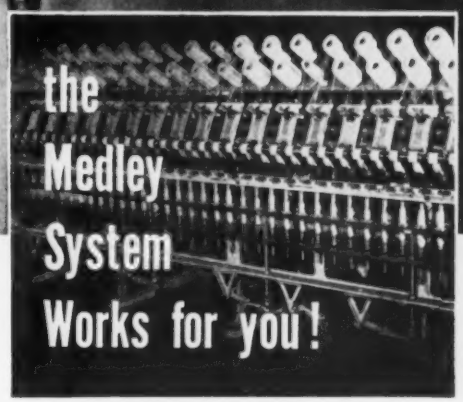
Cook-P&N Machine Co., 365 Dorchester Ave., Boston 27, Mass., has introduced a new stainless-steel slack washer. The machine is a self-supported unit with partitioned tank. The number of partitioned sections depends on the machine width and requirements of the customer. The long squeeze rolls and three sets of short squeeze rolls are rubber covered. Each set of short squeeze rolls is enclosed in a stainless-steel housing with a sliding door, the pressure of each set is individually adjustable, and their speed is variable. Either manual or pneu-



A partitioned tank and three enclosed sets of short squeeze rolls are features of a new stainless-steel slack washer. (Cook-P&N)

Get fewer Ends down!

With a Cleaner, More Uniform Sliver on MEDLEY DRAWING



Medley can prove this claim: Whatever the fiber, or blend of fibers, in any staple length from ⅝ inch to 13 inches, the Medley Drawing Frame definitely can help you increase drawing efficiency and lower operating costs. How? *By delivering a cleaner, more uniform sliver.*

The Medley Drawing Frame is precision built. It features 1) Sealed ball-bearing top rolls from fine-grained, wear-resisting steel, machined to near zero variation, 2) Hobbed helical steel and cast iron gears, 3) Generated bevel gears, 4) Studs, journals and necks made of stress-proof steel hardened and ground to close tolerances.

Your conventional drawing frames can be changed over to this improved Medley drawing. Write today for details.

The DIRECT SPINNER

in the Medley plant is daily proving the feasibility of this spinning method by processing finished yarn, in one operation, from continuous filament rayon tow.

This is only one of many improvements which Medley has brought to the Textile Industry. Other experiments are continually under way, designed to cut down waste, save labor and step up efficiency.

Call or write Medley when you need the services of trained textile or mechanical engineers.

Medley has it—or Medley will make it!

The MEDLEY System, Inc.

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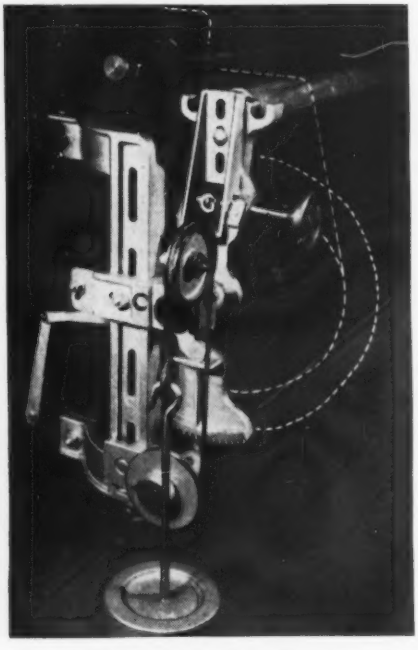
Medley Manufacturing Co., Columbus, Ga. • Gastonia Roller, Flyer & Spindle Co., Gastonia, N. C. • Allan Textile Machine Co., Pawtucket, R. I.

matic roll-pressure control is available.

The machines are furnished complete with front baffle, steam pipes, and guards, all of stainless-steel. Oval and carrier reels are also stainless steel. Many parts are interchangeable; for instance, guide rolls may replace squeeze roll, squeeze rolls may replace oval reel, etc.

Oscillating Let-Off Holds Even Tension



***An oscillating warp let-off** motion, reported to maintain constant warp tension, relieve tension while the shed is open, and let-off the warp at an even rate has been developed in England by Textomatics, Ltd., Blackburn, Lancashire. The motion is so constructed that the beam and whip roll oscillate around the beam axis in sympathy with the opening and closing of the warp shed, timed to ease the strain on the warp when the shed is open. A rod which receives a backward movement from the lay sword each time the loom crank reaches back center operates a worm and worm wheel which turns the beam.*

Humidity Controlled At Any Temperature

Measurement and control of humidity without regard to temperature is claimed as an advantage of a new dew-point measuring instrument recently introduced by Foxboro Co., Foxboro, Mass. Measuring dew point by means of the Dewcel, a new type of humidity-sensitive element, the instrument can be coupled to control mechanisms for automatic control of valves, dampers, or motors. The instrument measures the amount of moisture in the air, and records and controls this amount in grains of moisture rather than relative percent of 100% regardless of temperature in the room. Recorders available are liquid-expansion or electronic type.

***Humidity may be measured** and controlled regardless of room temperature by this new dew-point instrument. (Foxboro)*

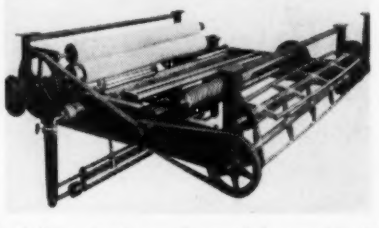
The humidity-sensitive Dewcel consists essentially of a thermometer bulb inside a thin-walled metal tube covered with a woven-glass tape impregnated with lithium chloride. The tube is wound with a pair of silver wires over the tape and covered with a perforated metal guard. When the lithium-chloride salt absorbs moisture from the surrounding atmosphere, it becomes an electrical conductor so that current passes between the two wires, thereby raising the temperature of the Dewcel, until equilibrium is attained. This equilibrium temperature is measured with a conventional temperature bulb, either liquid-expansion or electrical-resistance thermometer type. The entire operation is simple, positive, and completely automatic, it is claimed.

New Shuttle Designed Especially for S-6 Loom

A shuttle designed for use with the Crompton & Knowles S-6 loom has been introduced by Southern Shuttles Div., Steel Heddle Mfg. Co., 621 E. McBee Ave., Greenville, S. C. A steel thread-cutter plate with a mirror finish and a tool-and-die hardness are designed for positive cut-off at changes. The shuttle is equipped with the patented No. 300-series eye which requires no change for S and Z winds and which, because of its compact size, permits the maximum amount of bobbin-end clearance. The eye has micromatic finish pads for positive first-pick and running tension. Four adjusting screws assure constant, uniform filling tension, it is claimed. The spring assembly is of heat-treated, alloy steel. The bottom of the shuttle is of Ste-Hide phenolic-impregnated cloth which has almost the hardness and wearability of steel.

***High-speed weaving** of fine yarns was the objective in designing this new shuttle for the S-6 loom. (Southern Shuttles)*

Stainless-Steel Scutcher Has Ball Bearings



***Stainless steel** may be used in construction of a new scutcher which is supplied in eight standard widths. (Cook-P&N)*

A new scutcher developed by Cook-P & N Machine Co., 365 Dorchester Ave., Boston 27, Mass., is so designed that it may be used on all types of fabrics. It may be constructed entirely of stainless steel; or machines with brass rolls and governor, mild-steel frame and shafts may be ordered. Increased-diameter shafts throughout rotate in ball bearings. Gearing of beater and scroll roll is metallic-to-

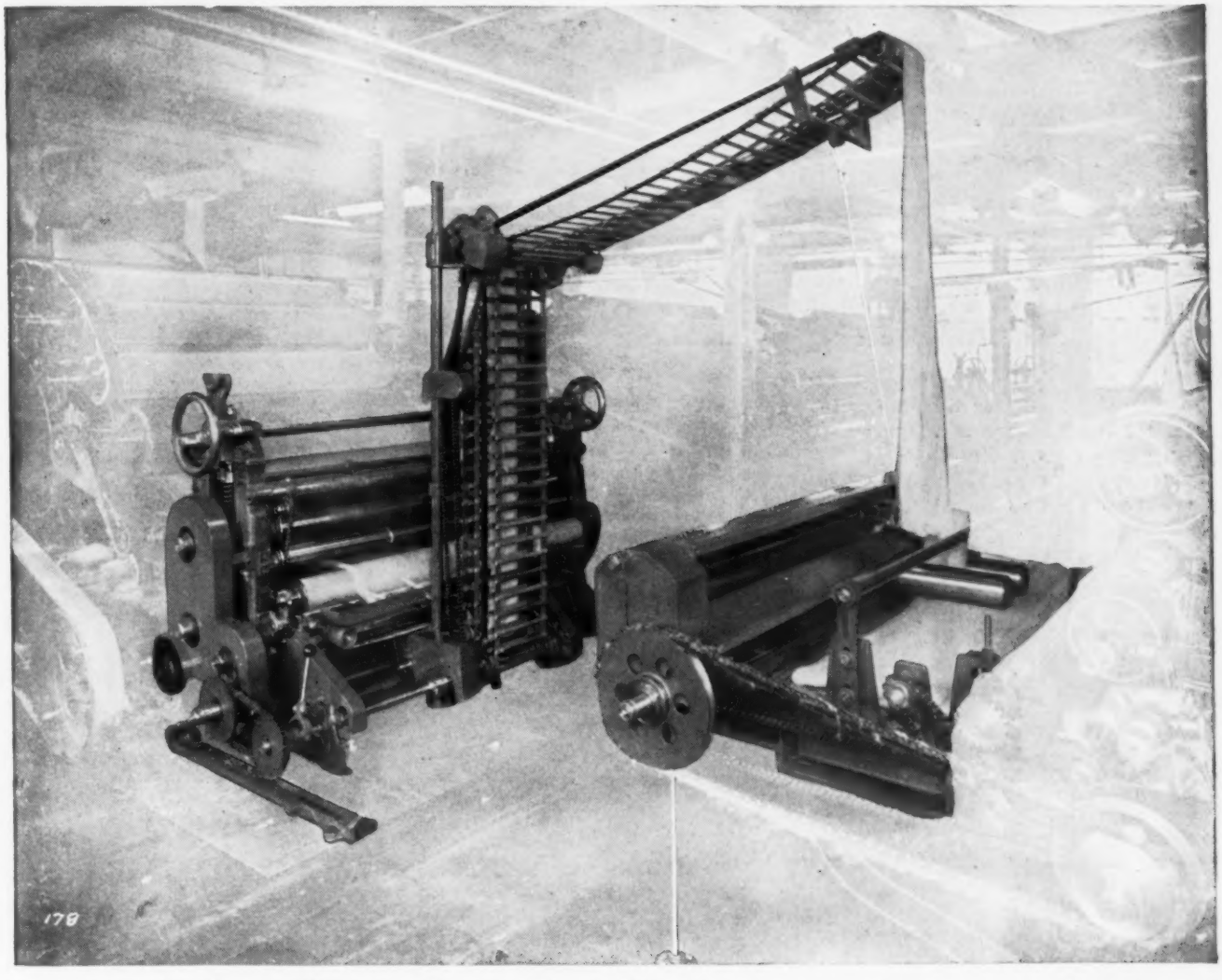
TEXTILE EQUIPMENT NEWS
(*Continued on page 248*)

Duesberg-Bosson of America, Inc.

Manufacturers of the Patented Peralta Machine and other Woolen Machinery

presents

its newly designed Intermediate Center Broad Band Feed



Furnished together with our **Peralta** or separately as a single unit.
Fits our **Peralta** perfectly. Saves lots of your valuable floor space.
Includes many improvements.

Duesberg-Bosson of America, Inc.

351 Harris Avenue, Providence, R. I.

Round Table

FOR EXCHANGE OF IDEAS—*The Round Table is designed to supply a meeting place where mill men can discuss problems among themselves. It is open to all readers for discussion of subjects relating to mill management and operation. Names of contributors to the Round Table will be held confidential if so requested, but sign contributions with your real name and address as evidence of good faith and to permit payment for items published. Address contributions to: Editor Round Table,* TEXTILE WORLD, *330 West 42nd St., New York 18, N. Y.*

This Formula Calculates Required Picks per Inch

Mill men frequently have trouble in finding the correct number of picks per inch of a new count of filling needed to produce a cloth of the same weight per yard currently produced from a given count of filling. Since there is a definite relationship between the required number of picks and the count of the filling, I suggest the following formula:

Required picks per inch = picks per inch of original cloth × the square root of (count of new filling ÷ count of original filling).

For example, if a cloth is using 50 p.p.i. of 12s filling and it is desired to change to 20s filling and maintain the same weight per yard of the cloth, the number of picks per inch of the 20s filling would be as follows:

$$50 \times \sqrt{20 \div 12} = 65 \text{ picks.}$$

This formula can also be applied for calculating the number of ends in a warp when it is desired to change the yarn number but maintain the same weave, weight, and filling picks. (*R*-383)

Kink in October Issue Can Be Simplified

Referring to an article in your Kinks and Short-Cuts section of the October issue, under the heading *Third and Fourth Shuttles Operate as First and Second*, it seems to me that the author went to a lot of unnecessary trouble. Not being familiar with his particular problems, which might arise through parts of the original loom being missing or through a prevailing shortage of chain risers, I would naturally suggest the simplest way out—namely, by altering the chain and using the third and fourth cells of his magazine.

If this method should be impractical for the reasons mentioned, an alternate solution would be the shortening of the box-lift chain by removing one or two links and then adjusting the box by the setscrew, holding the lifter rod in place to get the box realigned.

All these solutions, in my opinion, appear simpler than starting out to get a new lifter rod and spring and having to put them in proper adjustment. (*R*-382)

Unsuited Machine Parts Are a Useless Abuse

It is mildly aggravating to the writer to see many mill men constantly reorder machine parts that are no longer adequate for the type of work currently being produced on the machines.

For example, spring-needle knitting machines are adaptable to a wide variety of fabrics, ranging from cotton jersey to heavy overcoatings. Machines that were originally purchased to produce cotton jersey have, through changing style trends or merchandising policies, been converted to make heavy overcoatings. Since the gage and wheels are easily changed, it is no problem to switch from one type of fabric to another and obtain satisfactory cloth. However, some parts of the machines were not designed to withstand the additional weight and momentum entailed in making the heavier fabrics.

When the stop motions fail to shut off the machine when damage occurs, the procedure is usually to overhaul the motion system thoroughly. In most cases, the brake is the offender. The brake simply was not designed to check the force provided by the addi-

(*Continued on page 180*)

TEXTILE TICKLES . . . . . *By Edgar Allen, Jr.*

"Morley caught his head in the braider!"

ANOTHER EDITION JUST OFF THE PRESS

Send for Your Copy Now!

This 32-page illustrated booklet, "Fullergript Power Driven Brushes," is full of valuable data for the engineer. It contains pictures and descriptions of cost-reducing applications in a wide variety of industries. Probably, you, too, will find in it some new ideas for cutting production costs in your plant. This booklet is yours for the asking — no obligation, of course. Write for your copy today.

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"ROLL"-CALL

*shows top worsted mills winding with Roto-Coners**

Introduction of the all-metal (wear-resisting) rotary traverse allows mills winding the more abrasive yarns to increase winding room production with Roto-Coners*.

Today, an impressive list of mills testifies to the success of the Roto-Coner* in winding wool and worsted yarns.

The Rotary Traverse is a one-piece combination driving drum and traverse guide — precision grooved, dynamically balanced. By eliminating cams, it permits higher winding speeds (550 ypm for paper coning) and saves replacing fast-wearing parts. It needs no greasing, no adjustments, eliminates vibration.

And packages wound on the Roto-Coner* are free from imperfections and inequalities caused by slip drums, too small an angle of wind, and wear on reciprocating parts.

Read Bulletin 144 for more facts about America's fastest-selling winding machine.

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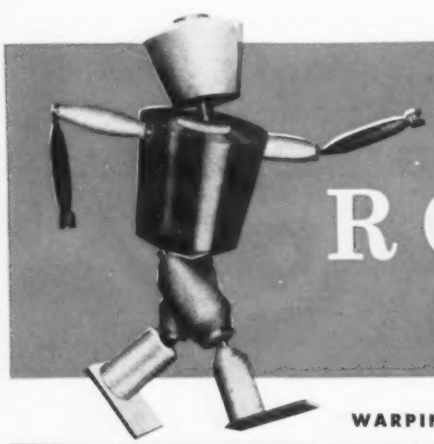
23-7-11



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ROTO-CONER*

Open-Wind Cones for Knitting

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WARPING CONES — DYEING PACKAGES — PARALLEL TUBES FOR TWISTING

Kinks AND SHORT-CUTS

Gage Lends Accuracy In Setting Mule Fallers

★ *Prize Winner for December*
(October contest)

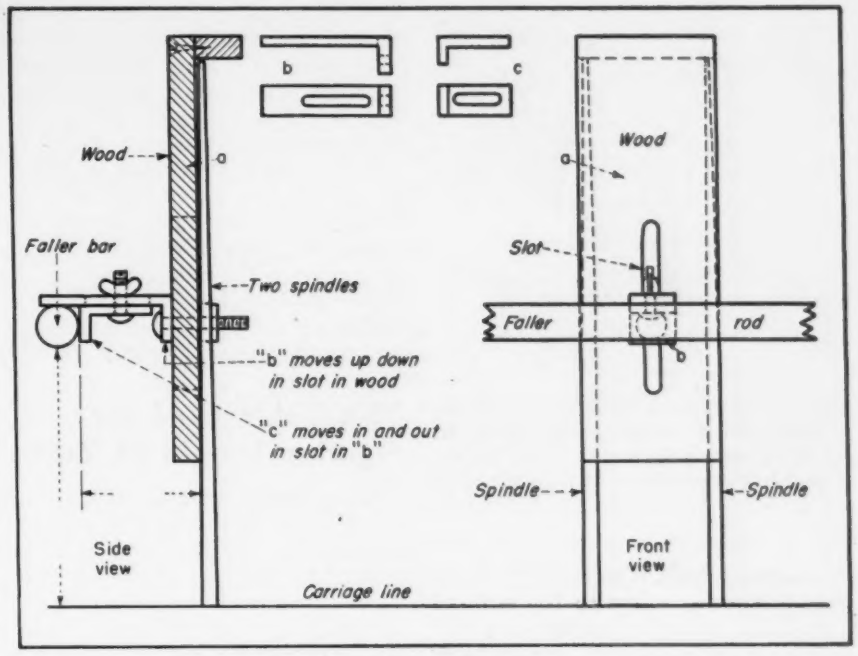
Setting the fallers on a mule-spinning frame so that yarn is wound the same height on all the bobbins can be done much more efficiently if an adequate gage is used to determine the proper adjustment. I use a gage similar to the one shown in the accompanying sketch for setting the fallers.

The gage consists of wooden plate a and brackets b and c. Plate a is wide enough to fit against two adjacent spindles, as shown in front view, and long enough to extend from the tips of the spindles to well below the faller rod. In the widthwise center of the plate, a slot is cut so that it extends well above and below the faller rod.

Bracket b, made of cast iron or plate steel, should have a short, right-angular end in which a bolt hole can be drilled. The other end should be straight and should be long enough to extend from plate a to a point outside and above the faller bar. In this longer side of the right angle, cut a lengthwise slot for an adjusting screw. To mount bracket b, put a bolt through the hole in the short side of the bracket and extend the bolt through the slot in a. Screw on a nut and tighten it so that bracket b is held in place. The under side of the bracket should lightly touch the upper side of the faller bar.

Bracket c is also made in a right-angular shape. No bolt hole is drilled in the short side of the right angle; but an adjusting slot, similar to the one in bracket b, is cut in the long side of the angle. To mount c, place the adjusting slot in c directly beneath the adjusting slot in b, insert a bolt, and screw a wing nut up on the bolt. Now move bracket c toward the faller bar until the short side of the right-angular piece rests lightly against the bar.

The gage is now ready for use. Set the fallers so that they will clear the tops of the spindles, remove plate a from the two spindles (allowing brackets b and c to remain as they are), and place plate a on two spindles at the next fallers. The faller rod and sickles should be adjusted so that the faller wires clear the spindles in comparable manner over the entire length of the mule. *(K-736) Joseph T. Igo, Rockville, Conn.*



Fallers on a mule-spinning frame can be accurately set by the use of this gage. Plate a sits against two adjacent spindles, and brackets b and c fit against the faller rod at two points. By adjusting the faller wires at each sickle, a uniform doff can be obtained on the mule.

Brazed Lugs and Lever Aid in Removing Nut

Sometimes it is difficult to loosen a nut, particularly if rust has formed on the bolt or nut. Often, pouring vinegar on the nut will help loosen it. Vinegar is quite penetrating and will sometimes soften a rust deposit because of its slight etching action.

If the nut cannot be removed after

A $25 SAVINGS BOND FOR YOUR IDEA

A $25 SAVINGS BOND will be awarded each month for the most useful "kink" published in this department. This contest is open to all readers of TEXTILE WORLD, and there is no limit to the number of entries any one person may make.

Contributions must be received not later than the last day of the month to be eligible for the award for the second succeeding month. Items may pertain to production methods, mill engineering, safety, cutting costs, improving quality, speeding up production; in brief, any little device, stunt, kink, or short-cut which you have tried out in your own mill and which you believe will be helpful to other mill men. Items should contain sufficient detail to permit other mill men to utilize the ideas in their own operation. Previously published material is not eligible for the award. Judges of contest are the editors of TEXTILE WORLD.

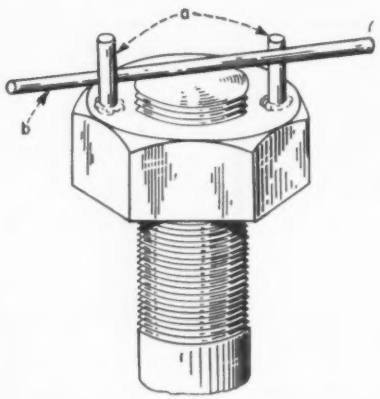
TEXTILE WORLD shall have the right to publish any items submitted. Items which are accepted will be paid for at regular rates for this type of matter with an extra payment for appropriate sketches or photographs. The sketch you submit need not be a finished drawing.

In writing to this department, give your real name and address as evidence of good faith and to permit payment for items accepted. Please advise whether your name may be used with the kink.

Contributions should be addressed to: Technical Editor, TEXTILE WORLD, 330 West 42nd Street, New York 18, N. Y.

KINKS & SHORT-CUTS

(Continued from page 171)

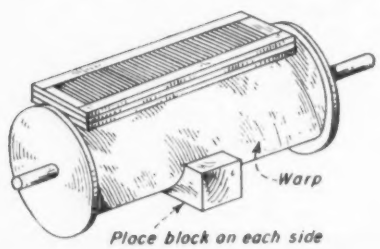


Lugs a brazed to a nut that cannot be removed with a wrench provide points for applying force with lever b. The lever can be as long as needed for applying the necessary force to break the grip of the threads.

the vinegar application, it may be helpful to braze two lugs to the nut and use a long lever for breaking the grip of the threads. After the nut has been removed in this manner, the lugs can be melted off without damaging the threads of the nut.

However, if a rust formation has damaged the threads and another nut and bolt are not available, the threads can be repaired by cleaning them and running hot solder on them. Before the solder hardens, run the nut on the bolt to shape the threads. *(K-731)*

Wedge-Shaped Blocks Prevent Warps From Turning



To prevent warp-yarn damage on heavy warps that are stored on the floor, two wedge blocks can be used to keep a warp from rolling. On many types of heavy warps, there are no beam flanges except the large, narrow flanges of approximately 1-in. thickness. When these warps are placed on the floor, the weight of the harnesses will cause the beams to turn until the harnesses rest on the floor. This turning results in twisted harnesses and often chafed or broken yarn. To prevent such damage and save time in handling warps, place the harnesses of stored warps level on top of the warps and slide wedge blocks under each side of the warps so that they cannot turn. (K-676)

Removing Loop Pickers Aided by Special Tool

A tool to remove loop pickers can be made by cutting a 1-ft. length from the upper end of a discarded picker stick. Since this end fits easily into the lay-end slot, there is no need to sand away any of the wood. Attach a small piece of metal with a screw to each end of the wood to prevent splintering during occasional use.

To remove a picker that is tight on the stick, remove the screw from the picker, place the tool up through the lay-end slot from below, and press the tool against the under side of the picker. A sharp blow on the opposite end of the stick, below the check strap, will usually release the picker. *(K-675)*

This Table Used for Figuring Weight of Yarn

Considerable time in figuring the weight of warp in a woven construction can be saved by making up a table similar to the one explained here. Since most mills have a standard length for dressed and woven cloth, it will be necessary to make up a different table only for different yarn numbers. Of course, if a length besides the mill's standard length should be used, it would also be necessary to make up a different table for the new length.

The usual procedure for figuring the number of pounds of warp and filling is to use the formula: (No. of ends × yd. of dressed cloth) ÷ (Yarn no. × yd. of yarn per lb.) = lb. of yarn.

For example, suppose that a dressed piece is 80 yd. long, has 4,320 ends of 40/2 warp, is reeded 72 in. in width, and the woven length is 75 yd. The pounds of warp yarn in the piece, figured by the formula, would be: (4,320 ends × 80 dressed yd.) ÷ (20s yarn count × 560 yd. of warp yarn per lb.) = 30,857 lb. of warp yarn.

To make up a table that can be used easily and quickly, determine gage points consisting of the fractions of one pound of warp yarn that are contributed by each of the first ten ends in the warp. As: (1 end × 80 yd.) ÷ (20 × 560) = 0.0071428 lb. per end. The table would be as follows:

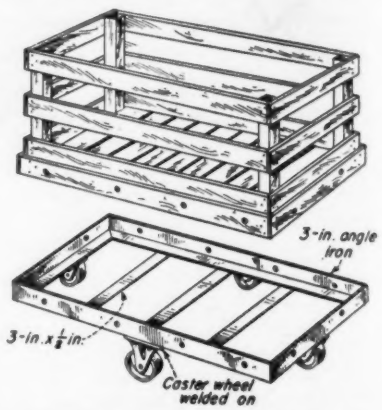
No. ends	Lb. of warp yarn
1	0.0071428
2	0.0142856
3	0.0214284
4	0.0285712
5	0.0357140
6	0.0428568
7	0.0499996
8	0.0571424
9	0.0642852
10	0.0714280

To use the table to determine the pounds of warp in the piece with 4,320 ends of 40/2, separate the 4,320 into thousands, hundreds, and tens (no units are involved in this number), as: 4,000, 300, and 20. Now write down these figures, select the applicable figures in the table, and write the table figures down, moving the decimal point to the right as indicated. Thus:

4,000 = 28.5712 (Decimal point 3 places to right)
300 = 2.1428 (2 places to right)
20 = 0.1428 (1 place to right

4,320 = 30.8568 lb. of warp. (K-251)

Detachable Box Base Is Useful for Wet Goods



A detachable base for boxes used in wet-finishing rooms makes it possible to change a damaged box for a new or repaired one without the necessity for sending the box to the shop. Such a base also has the advantage of firmly held casters that cannot come loose.

The type of box normally used in the wet-finishing department for storing and transporting goods consists of a wooden frame and base bolted to casters. The casters frequently come loose, and the wooden base sometimes rots out. When either of these conditions arises, it is necessary to send the box to the carpenter shop to have it repaired. Often, the box is continued in use too long before it is sent to the shop; and using it is considerably harder on the worker in the finishing department who must handle it than handling a box that is in good repair.

We have found that more satisfactory and economical use of boxes can be had by constructing a detachable base for the wooden frame of the box to rest on. The frame, shown in the accompanying sketch, is made of 3-in. and 3x½-in. angle iron, the 3-in. iron being used for the sides and ends and the 3x½-in. iron for the crosswise supports.

Four casters are welded underneath the base, and bolt holes are drilled in the sides and ends of the base in order to bolt the wooden frame to the base.

To mount a box on the base, set

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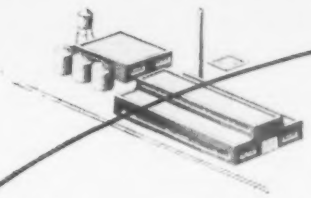

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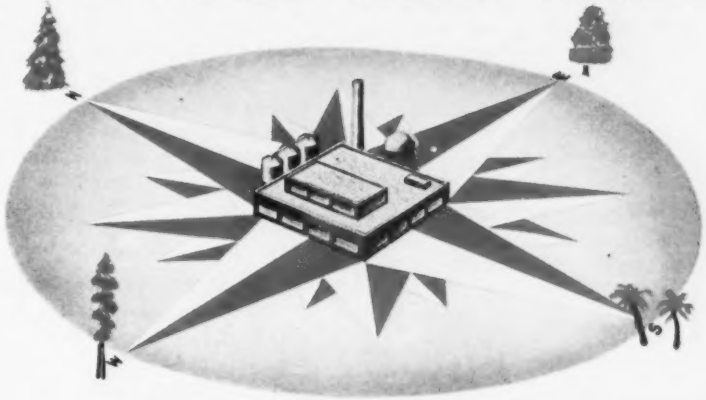

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KINKS & SHORT-CUTS

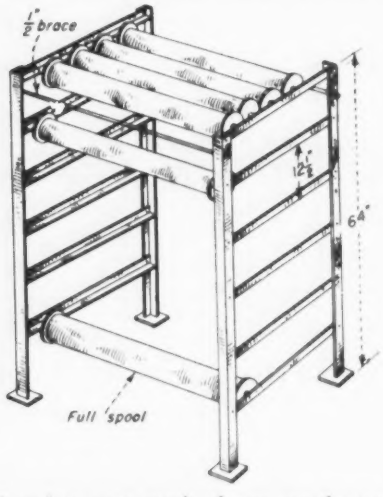
(Continued from page 172)

the box on the base and bore holes in the baseboard of the box to correspond with the holes drilled in the angle iron. Place bolts through the baseboard and angle iron, and tighten them. If it is desirable to cover the bolts and base, nail or screw on a 6-in. board around the baseboard.

If the box should become damaged or the bottom boards rot out, a new box can be placed on the base by removing the bolts, placing the new or repaired box on the base, and tightening the bolts.

If the box is used more for storage than for transporting, it may be desirable not to bolt the box to the base. The base can be made of the correct dimensions for the box to sit snugly inside the angle-iron sides and ends, and bolting it will not be necessary. *(K-765)*

Racks for Spools of Yarn Save Floor Space and Waste

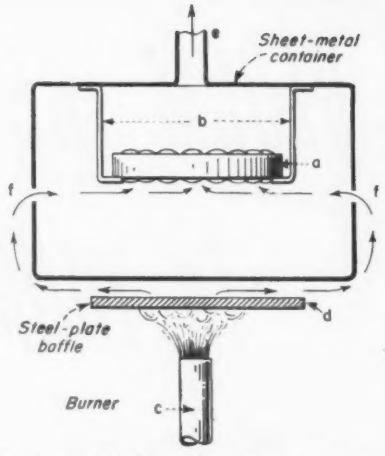


A rack to store spools of yarn may be constructed from angle iron or wood. Although measurements are given, the size will depend upon the length and diameter of the spool. In some mills, the rack extends from the floor to the ceiling. (K-549)

Air Suction Aids In Cleaning Ball Bearings

Ball bearings, roller bearings, needle bearings, etc., can be effectively cleaned with a vacuum cleaner. For best results, it is necessary to use a special container for the bearings and clean them in warm air.

The bearing to be cleaned should first be washed in a cleaning solvent in the usual manner to soften deposits of caked grease and to remove as many impurities as possible. When the bearing is removed from the solvent bath, it should be allowed to drain, after which it is ready to be cleaned with the vacuum.



Bearing a is held in slings b, and warm air from burner c is drawn into the container through holes f and out through hole e. This flow of warm air aids in cleaning and drying a bearing washed in a cleaning solvent.

The vacuum cleaning should be done as follows: Place the bearing, represented as a in the accompanying sketch, in sheet-metal slings b of the container. Light burner c under the container so that the top of the flame plays against baffle plate d. Warm air from around the plate will be drawn upward when suction is applied to the container at e and will enter the container through holes f. This flow of warm air over and through the bearing will clean and dry it.

When the bearing is removed from the container, it should be placed on a clean plate of glass; and all the utensils used for refilling the bearing should be clean. *(K-766)* W. E. Warner, Essex, England.

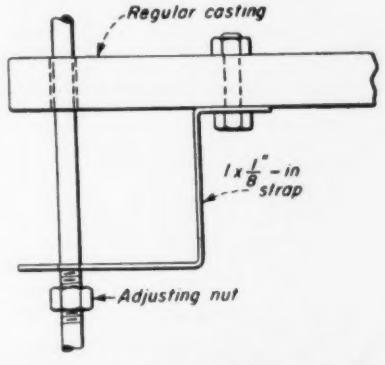
Brace for Knock-Off Rod Prevents Short Doffs

We have had considerable trouble on wool-spinning frames as a result of workers stepping on the adjusting nuts on the rods that release and kick in the doffing mechanisms. When a misstep of this nature occurs, the frame knocks off and is doffed prematurely. Short doffing, of course, is expensive not only in the spinning operation itself, but also in the processes that follow.

To remedy this condition, I devised the arrangement shown in the accompanying sketch for extending the casting that guides the knock-off rod so that the adjusting nut will be out of the way of the worker's feet.

The extension is made of a length of 1x⅛-in. strap iron and is bent in two right angles as shown in the sketch. In one end, a hole is drilled for receiving a nut to secure the extension to the frame casting. In the other end, another hole is drilled to serve as a guide for the knock-off rod.

To use the extension, bolt one end to the under side of the casting and line up the hole in the other end with the guide hole in the casting. Remove the adjusting nut from the knock-off rod, lower the rod through the guide hole in the extension, and replace the adjusting nut. Some adjustment of the nut will probably be necessary to insure that the rod will knock off the frame at the proper time. *(K-767)* Raymond Moody, Lewiston, Me.



This extension braces the knock-off rod on a wool-spinning frame so that the knock-off-rod adjusting nut can be lowered to prevent workers from accidentally tripping the knock off by bumping the rod or nut with their feet. The extension is made of 1x⅛-in. strap iron.

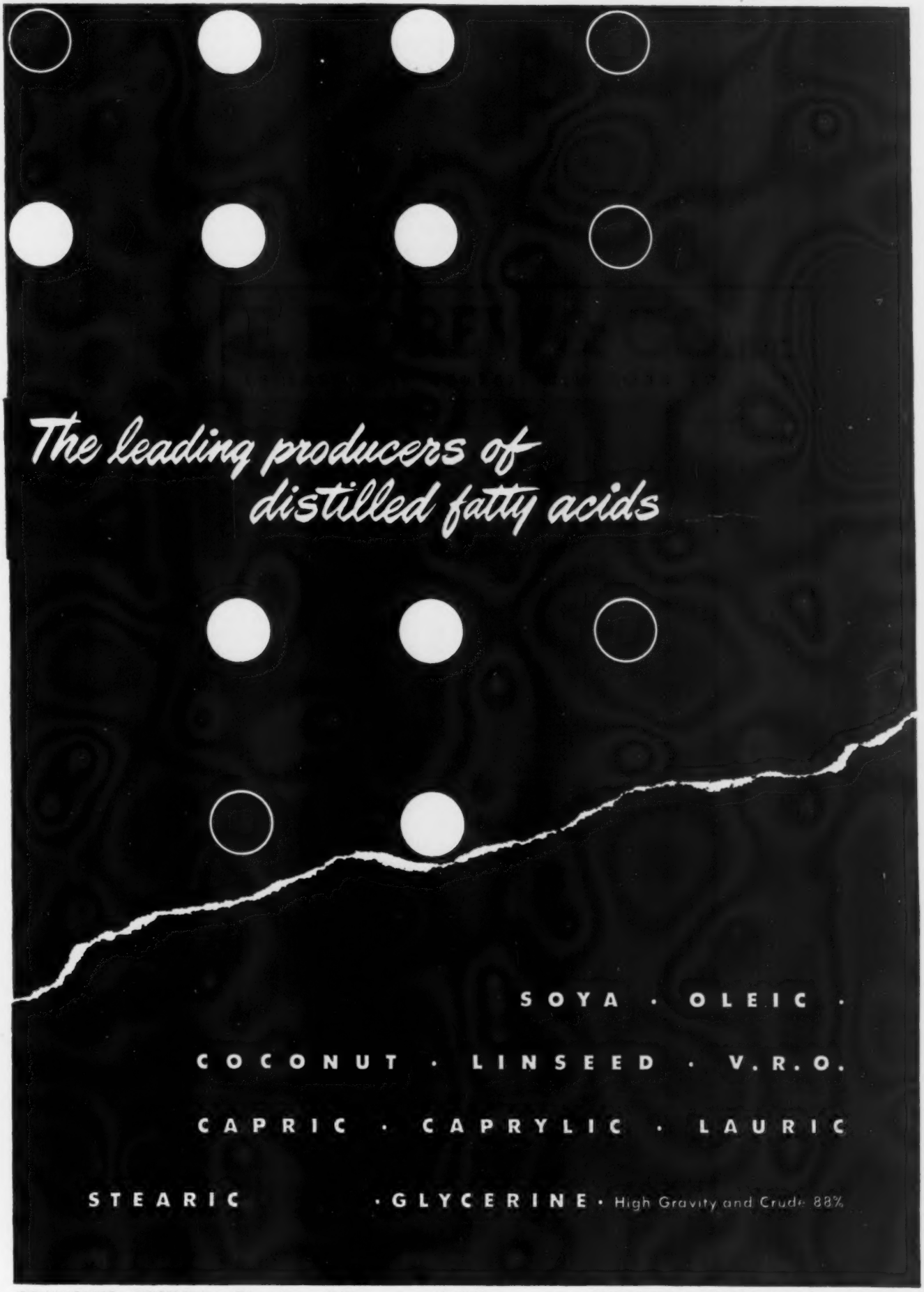
Time Can Be Saved In Picking Double Leases

The following pointers on preparing warps for the loom are useful:

1. On some double-plush constructions, it is desirable to use a double lease to give a better warp line. Of course, a double lease can be picked by leasing the top part and then cutting it and laying it over the beam while the bottom part is picked.

A better method is to pick the lease single and insert two lease rods in the lease. Now drop ends Nos. 1 and 3, and insert a lease string under ends Nos. 2 and 4 over the entire width of the warp. The ends are taken right in between the two lease rods from the single lease. Now insert a flat rod along the lease string, and turn the rod on edge to make the warp sheds for the top and bottom leases.

2. Sometimes a warp has to be run onto a different beam; and in such a case, the lease can be run at the same time. Place a stand at the back of the beamer to hold the beam onto which the warp is going to be run. The beam flanges must have grooves so that rope tension can be applied to hold the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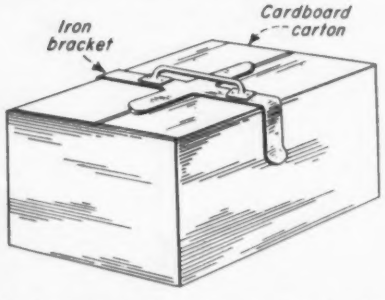
KINKS & SHORT-CUTS

(Continued from page 174)

beam tight. Reed the ends 4 per dent, if there is a large number of ends in the warp. Insert two rods in the lease. These rods should be about 8 in. in circumference and should come to a point at one end so that they can be easily inserted into the lease sheds. The first rod should then be run at the front of the reed about 6 in. from the beam, and the second rod should be run at the back of the reed about 3 yd. from the first rod. If the warp is well beamed, there should be no trouble in running the lease in this manner.

3. In case it is not desired to run the lease, the four ends in the reed can be separated in the same manner as picking for a double lease by running three ordinary rods close to the beam at the front of the reed. These rods should be tied securely to the beaming frame. *(K-249)*

This Iron Bracket Aids in Gluing Cartons



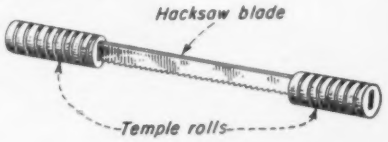
We have found the use of an iron bracket similar to the one shown here of value in our packing room as an aid in gluing cartons. After the glue has been applied to the carton flaps, place the bracket over the closed flaps as shown here. The bracket will hold the flaps in place until the glue dries. (K-762)

Replace Flat-Brush Bristles With Burnishing Wire

The flats of a revolving flat-top card can be kept in good shape by using burnishing wire in the flat brush instead of the usual hair bristles. When a brush needs rebristling, fill the holes in the brush with burnishing wire instead of bristles.

Such a brush not only combs the strips out of the flats, but it also sharpens and polishes the flats, greatly reducing the necessity for grinding. An occasional grinding will, of course, be needed to maintain the flat face of the point of the wire. *(K-763)*

A Hacksaw Blade Alone Is Sometimes Useful



Occasionally a fixer may need to get into some tight place with a hacksaw but is prevented from doing so by the lack of working space for the frame of the hacksaw. To use the blade without the frame, force a rubber temple roll over each end of the blade and use these as the means for handling the blade.

If there is not enough working height for the blade itself, it is sometimes possible to grind down a hacksaw blade to a narrow strip and use temple rolls for handles. If a blade is to be cut down for only one use, an old blade should be used; but if the tool is to be used indefinitely, it is best to use a good blade and keep it in the tool box. (K-674)

Control of Filling Prevents Selvage Loops

When a hard-twist filling that has a tendency to kink is being woven, it is often difficult to prevent loops at the selvage on the box side of the loom. Usually, when such loops are being formed, the loomfixer checks the shuttle tension, the boxing of the shuttle for rebound, the race plate for rough places, and the effectiveness of the box binders. He also shapes the binders so that their ends do not lie flat against the boxes.

If the loops continue after the fixer has assured himself that the loom and shuttle are right, he must devise some means for keeping the filling from the various shuttles separated while the boxes are changing. The filling ends have a tendency to catch on each other, and an outgoing shuttle will drag the filling from the other shuttles into the shed, making loops and jerked-in filling.

Several things can be done to prevent such loops and jerk-ins.

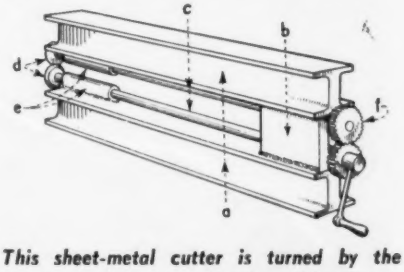
Sometimes a piece of fur tacked on the race plate will keep the filling ends separated. The fur should be fastened to the front edge of the race plate in such a manner that it holds the filling from the inactive shuttles but releases the filling of a shuttle when it is picked out of the box.

Another method is to unravel several threads from both edges of a strip of cloth, twist the cloth so that the unravelled edges form a spiral, and tack one end of this spiral to the reed cap and the other end to the front of the lay near the boxes. This spiral should have a small amount of slack, but not enough slack to permit it to sway into the path of an outgoing shuttle. Sometimes it is desirable to make the spiral of cloth vibrate, particularly if there are more than two shuttles in use. A small amount of vibration can be created by attaching one end of a cord to the strip of cloth at race height and the other end to the breast beam or temple. If such a cord is used, the bottom end of the twisted piece of cloth must be fastened to the protecting rod or the bottom of the lay, instead of to the top of the lay. (Another strip of cloth twisted into spiral form can also be used as a vibrator cord.)

A third method, for use on 2x1 looms, is to use wire for preventing loops. The wire should be used as follows: Lead a small-diameter wire through a heddle attached to an extra harness lever. This lever should be pegged on the pattern chain so that the wire will be down on the lay when the boxes are up.

Instead of wire, it may be desirable to use a double end from the selvage. This double end should be brought from the warp beam, over the whip roll, through a heddle (as in the case of the wire), through a screw eye fastened to the breast beam, back through the heddle, back under and over the whip roll, and into the regular selvage heddle. If passing the double end through one heddle twice crowds the ends in the heddle, two heddles mounted side by side may be used. The advantage of using warp ends instead of wire is that they will not wear the race plate and are not so likely to damage the shuttle. *(K-764)*

Sheet-Metal Cutter Is Turned by Handcrank



This sheet-metal cutter is turned by the handcrank. Beams a, plate b, and bearings e hold the cutters in place. Power for cutting up to 16-gage sheet steel is transmitted through gears f to cutters d.

A sheet-metal cutter made of scrap material found around the shop is shown in the accompanying sketch. This cutter has proved satisfactory for cutting sheet steel up to 16 gage.

The frame work of the cutter consists of two I beams 4 in. in diameter and 36 in. long. They are held securely in place by a 1-in. steel plate welded to them on either side, b in the sketch. Inside the I beams, two ¾-in. shafts are placed in positions in-

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KINKS & SHORT-CUTS

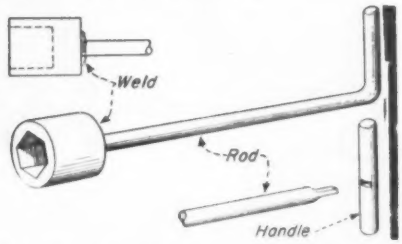
(Continued from page 176)

dicated by c. The ends of these shafts, except the end at the crank, are turned down to $\frac{3}{8}$ in. for receiving cutters *d* and gear *f* and threaded for nuts to hold the cutters and gear on the shafts.

Two lengths of pipe, *e*, babbitted to serve as bearings, are welded to the *I* beams in order to support the ends of shafts c. Similar pipe bearings are welded at the other ends of the beams and also to the insides of plates *b*. Cutters *d* can be made from tool steel. It is important that the cutters do not overlap more than $\frac{1}{8}$ in. The crank is slipped over the end of the lower shaft as shown in the sketch and secured to the shaft by a setscrew.

To use the cutter, insert the sheet metal between the cutters and turn the crank. (K-759) *The Lincoln Electric Co.*

Wrench Shank Improves Socket Usefulness



Sometimes loosening or tightening out-of-the-way nuts can be aided by a socket wrench modified as shown here. Weld a regular socket to a steel rod, such as a picker rod, and bend the other end of the rod as shown to form a handle.

For some applications, it may be desirable not to bend the end of the rod but to leave it straight and flatten an inch of it to fit into a detached handle. In this form, the rod can be made as long as needed and the handle can be lengthened to provide the leverage needed. (K-750)

Vacuum-Stripping Plate Should Be Beveled Off

Our card room is equipped for stripping cards with a vacuum-stripping system. A card is stripped by placing the suction pipe on the stripping stand fastened to the card and starting the stand along the traversing screw that drives it across the card. The stand consists of a tubular extension to the doffer, one to the cylinder, and the driving mechanism. The extension to the cylinder passes through a slot cut in the stripping plate of the cylinder so that the end of the extension rests lightly against the cylinder clothing.

The lower edge of the slot is square. When the standard stripping door is used, this edge of the plate housing is covered by the lower edge of the door; and there is no recess in which fly and motes can accumulate.

However, when the slot is cut for the vacuum stripper, it is covered on the outer side by a narrow strip of thin metal. As the stripper moves across the card, this strip raises to permit the passage of the stripper extension. When the stripping pass is completed and the stripper is pushed back to its neutral location at the other side of the card, a notch at the end of the metal strip falls down over the extension; and the strip covers the slot all the way across the card.

Since the strip is located immediately over the slot, the square edge of the plate forms a recess. Naturally, lint, fly, and motes collect on the edge of this plate; and if the plate is bumped the accumulation will be snatched onto the cylinder. It will show up in the card web as a heavy, cloudy, dirty streak all the way across the web.

We traced a large amount of slubby roving to this accumulation and corrected the condition by beveling off the edge of the plate so that fly and motes cannot accumulate. (K-768)

Pin-Dryer Operation Aided by Signal Lights

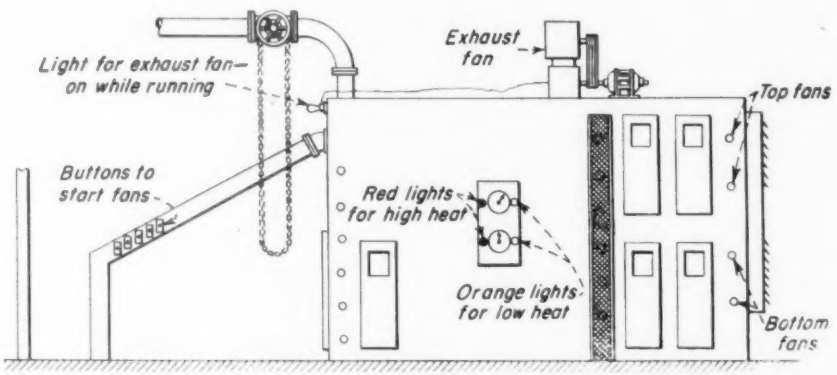
The tenter and pin dryer normally used for drying woolen and worsted fabrics requires that the operator check frequently to make certain that the exhaust fan is running and that the proper amount of heat is being obtained in order to dry the cloth properly. Usually, the fan is located on top of the dryer and is driven by an individual motor. When the operator presses the button to start the motor, he has no way of knowing whether or not the fan is running unless he looks at it. The fuses used in connection with these fans are easily burned out, and stoppage of the fans is not unusual.

We have found that it is advantageous to install signal lights to indicate whether or not the exhaust fan is running and also to indicate whether or not the cloth is being subjected to the proper heat.

As shown in the accompanying sketch, a light can be mounted on the top front of the dryer, so that the operator can see it at all times. The circuit for the light should be cut into the fan circuit between the fuse and the fan, so that the light will burn only while the fan is running. If the operator pushes the button to start the fan, he will know at once if the fan is running by whether or not the light goes on.

Limit switches for high and low heat can also be placed on the side of the dryer at the two thermometers that indicate the drying heat in the oven. As shown in the sketch, a red light can be connected with each heat indicator and the circuits arranged so that a switch to light the red bulbs is thrown when the heat gets too high. Similarly, orange lights can be connected with the indicators to show when the heat is too low.

By the use of these red and orange lights, the guesswork in operating the pin dryer can be eliminated and more uniform drying can be obtained. The installation of these heat lights and the exhaust-fan light quickly pays for itself in a saving of the operator's time and in reducing the number of batches that have to be re-dried. (K-758) *Paul W. O'Neil, East Chelmsford, Mass.*



The operation of a pin dryer can be improved upon by installing signal lights to indicate when the exhaust fan is running and when the heat in the dryer is too high or too low. A white light, mounted on the front of the dryer and wired into the fan circuit between the fan and fuse, will burn while the fan is running. Red and orange lights, controlled by limit switches actuated by the indicators on the side of the dryer, show when heat in the dryer becomes too high or too low.

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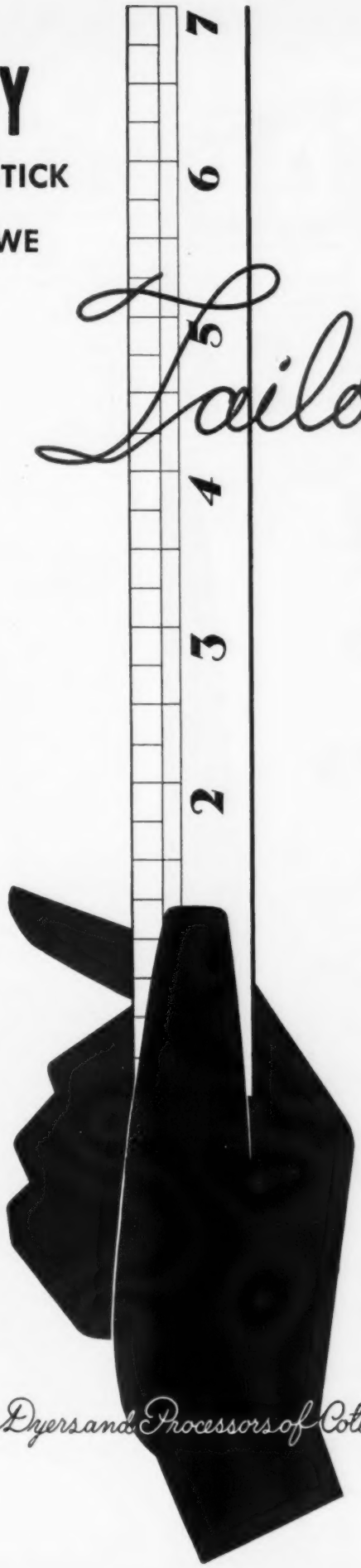

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(Continued from page 168)

tional weight at the same speed. Larger brakes or differently designed brakes are the answer.

Driving gears also come in for their share of abuse. When adequate braking is provided, the added shock each time the machine stops gradually breaks down the gear teeth. Loss of production, high maintenance expense, and an overworked fixing staff naturally follow. Heavier gears that maintain the same ratio can be obtained from the manufacturer.

Objective thinking along these lines will increase production and save many dollars. Certainly, any reputable machine manufacturer will be grateful for any suggestion from a mill that will improve his product. (*R-381*)

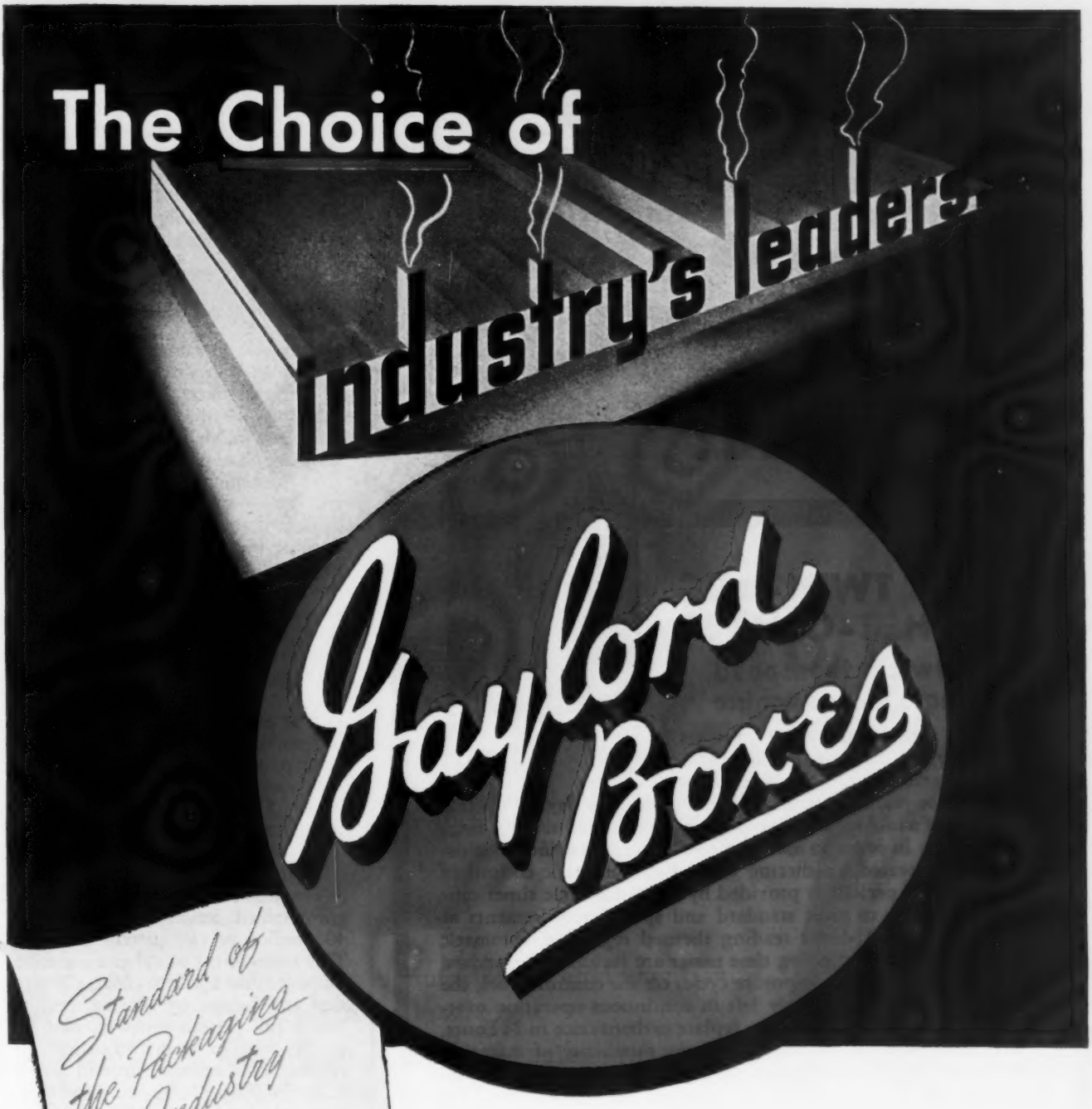
Knitting Pattern Fields Should Be Pre-Planned

The article *Spiral Designs Versatile in Circular Knitting* [T.W., Sept.], by Karel Rehak, presented a comprehensive and concise description of the methods of laying out pattern fields for circular knitting machines. Mr. Rehak left little room for improvement; designers using the methods and formulas presented should have no difficulty in obtaining any wanted pattern.

The suggestions offered here are intended to pick up where Mr. Rehak left off and give designers a well-rounded program by which they not only can obtain desired patterns but can also get them quickly and efficiently.

The designer should explore every possibility of the equipment in his plant before he has need for it. As an example, consider a plant using spring-needle, circular knitting machines. Two makes of this type of machine are in popular use. The main difference, from the designer's viewpoint, is that one machine uses a leaded needle while the other employs a trick top containing needle slots. Within certain limits, the number of needles in the leaded type can be quickly changed by adding or taking out the desired number of leads. The trick-top model has needle slots machined in the top by the manufacturer. The number of needles in this type machine is also variable within the limits of the gage. However, since the slots are cut into the metal of the top itself, a new top must be installed each time a change in the number of needles is desired. For this reason, it is important for the designer to know the capacity or versatility of each trick top.

Most mills have a number of stand-



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137

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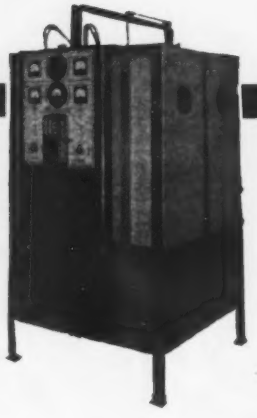

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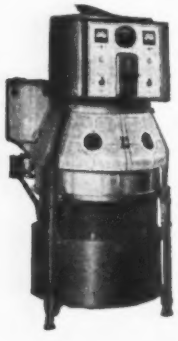

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ard patterns that remain in production over long periods of time. When additional trick tops are ordered, the tops that will be adaptable to the greatest number of patterns should be selected. Spacing backing wheels also requires this consideration. Since pattern pressers are usually cut within the plant, they present no significant problem.

A plan using the above outlined principles would be initiated in this way: Each number of needles available (either trick-top or leaded type), in combination with all possible sizes of pattern pressers, would be explored by using the mathematical formulas presented in Mr. Rehak's article. All possible numbers of feeds would be tried, in conjunction with the needle and presser combinations.

For instance, consider a pattern 20 needles wide on a 10-needles-per-in. gage, cylinder diameter 32 in., containing 1,000 needles. The number of pattern-presser spaces can be any multiple of 20 that will not divide evenly into 1,000. It is obvious that the number of spaces cannot divide evenly into the number of needles, for in that case there would be no spiral pattern; each pattern division would print directly over or under itself in each succeeding revolution of the cylinder. This process would make a simple repeat pattern instead of a spiral build-up.

Trying first a 60-space presser, it will be seen that 16 full pattern impressions are obtained, leaving a remainder of 40 needles, or two pattern divisions. This arrangement would give a specific shape to the pattern field. Trying next an 80-space presser, the result is twelve full pattern divisions, plus 40 needles over, or again two pattern divisions. This arrangement will give a field of a different size and shape than that obtained with the 60-space presser. Adding or subtracting feeds increases or decreases the vertical dimensions of the fields. This process is continued with each practical size of presser and each practical number of feeds.

The resulting pattern fields should be drawn on graph paper. On the graph should be recorded all pertinent data, such as gage, size of pressers, needle spaces in pressers, pattern divisions in pressers, number of feeds, number of needles in cylinder, etc. If the same numerical values are present in cylinders of different diameters, this fact also should be recorded. Thus, when the finished width of the fabric is unsatisfactory, the same pattern can be applied to a greater or lesser diameter without the necessity for redesign-

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Cotton-Fiber Color Is Unaffected by Trash

I should like to congratulate you on the brevity and clarity with which you condensed and presented the essential data in my paper on effect of cleaning on grade and color of cotton [T. W., Aug. 1947, p. 130].

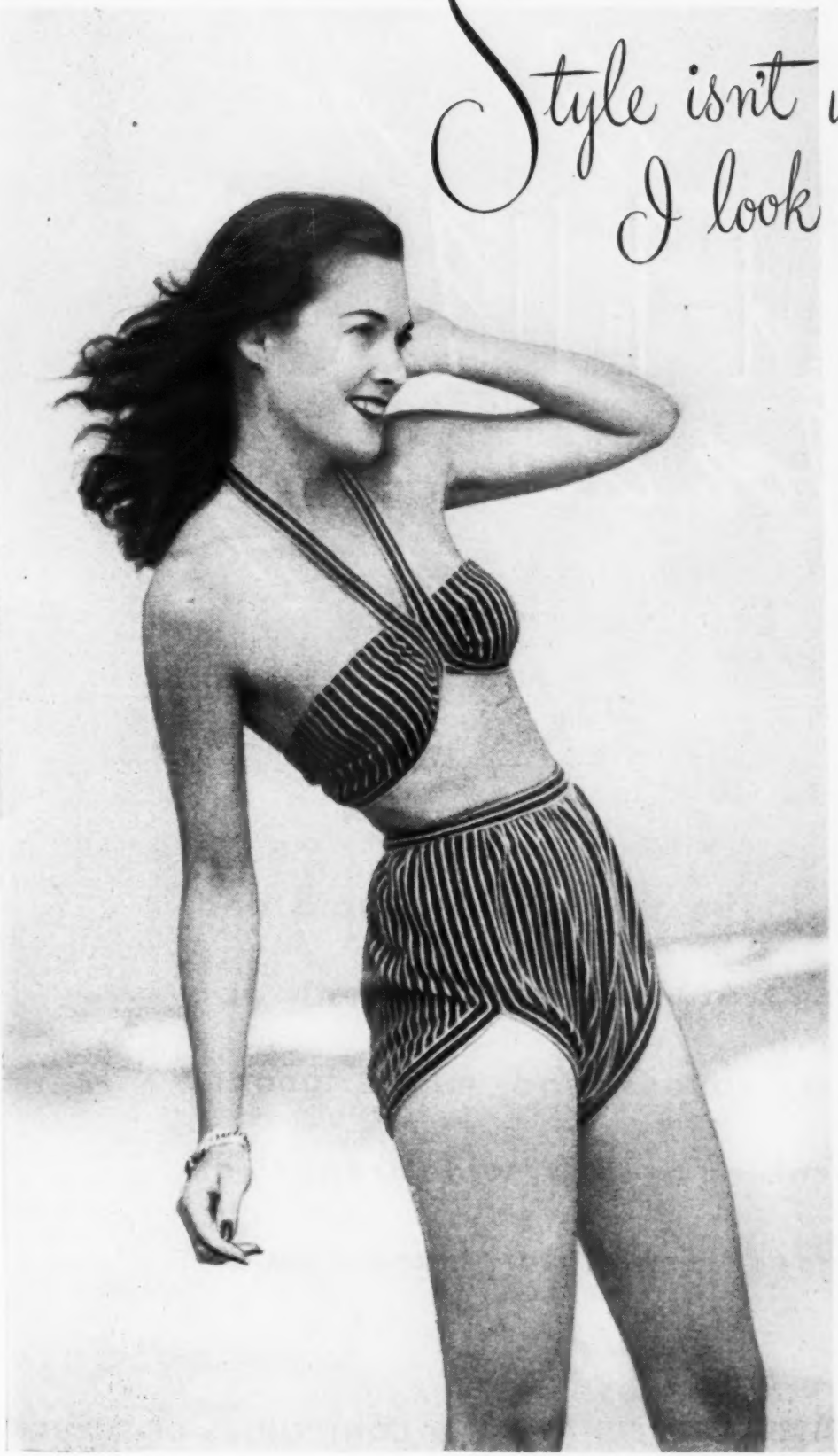
My only criticism is that in the title for the paper the emphasis is somewhat misleading. There is a great deal of discussion today about cleaning methods. People talk loosely about the wonders that can be accomplished if only cleaners could be developed to take out trash at the time of ginning without hurting the fibers. Since there already is a laboratory-type cleaner that will do this job on small samples, it was my purpose to ascertain the extent of expected change in grade if all the trash were removed and the color remained the same as when the cotton was picked.

Trash in cotton is not all there is to grade. If cotton is allowed to stay in the field long enough for its color to be lowered before it is picked, the grade, as we found in this study, will not be improved more than one to two steps if cleaners were developed to remove 100% of the trash.

Picking practices do affect the market grades of cotton. If cotton is picked early enough, the color will be high and the trash content low. As cotton remains in the field, the color deteriorates, and leaves and trash dry out so that more of them are picked along with the cotton.

The color measurement that we make of raw cotton is of its general appearance, including the fiber color, trash content, and the roughness or smoothness of ginning preparation. The fiber color is not improved by removal of trash; but the general appearance of the sample, as measured by its color, usually is improved. (R-374) *Dorothy Nickerson*

"Style isn't what I look for first..."



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1. Raythro 75, a soaking compound for rayon crepe yarns made by L. Sonneborn & Sons Co., is described and steps in its application are listed in a new bulletin.

2. A CO_2 indicator for chimney-gas testing is described in a folder issued by Burrell Technical Supply Co.

3. Super-precision ball bearings made to ABEC-7 tolerances are discussed in a booklet offered by Fafnir Bearing Co. Full technical data are included.

4. "Vat Dyeing of Wool" is the title of *Calco Technical Bulletin* No. 797. Various application methods and aftertreatments are discussed.

5. All models of the Pike Flash-O-Lens are shown and described in a folder available from E. W. Pike & Co.

6. Type CT rolled-shell, shaftless, squirrel-cage motors for built-in drives, with details of construction, mounting, ventilation, and application are described in Bulletin 516-D of Louis Allis Co.

7. Employee pension plans, as insurance against losses through "employee depreciation," are discussed in a folder offered by Guy S. Burtis.

8. "Twists and Winds," the new publication of Universal Winding Co., incorporating *Getting the Most from Winding* and *Atwood Twists,* discusses in a recent issue the delivery point of thread guide (No. 50 winder), correct setting of breakage lever (Roto-Coner), how to prevent stitches (Roto-Coner), anti-wrap brushes (Roto-Coner), care of compensator wheels (No. 90 winder), traverse motion (model 110 uptwister and model 200 redraw), and slub-catcher settings.

9. Texrope V-belt drives of Allis-Chalmers Mfg. Co. are fully listed and described in a 144-page catalog intended for use in drive selection.

10. Materials-handling equipment of Lewis-Shepard Products, Inc., power fork trucks, stackers and cranes, trucks, skid platforms, and storage racks are included.

11. The chemistry of long chain molecules is explained in non-technical language in the October issue of *Monsanto Magazine.*

12. Yarn guides of Carboloy, a product of Carboloy Co. for wear-resistant applications, are listed and described in a general catalog of Carboloy cemented carbide specialties.

13. Trough-belt conveyors for handling sand, gravel, coke or similar material from railroad cars to trucks or bins are listed in a folder offered by Trowbridge Conveyor Co.

14. Can dryers for various textile applications are shown and described in a folder issued by Edward Parkinson Mfg. Co.

15. Sealing cases of various types, describing materials and methods, is covered in a booklet issued by National Adhesives.

16. The Hypressure Jenny steam cleaner in a "utility" model is shown and described in a folder available from Homestead Valve Mfg. Co.

17. Protective coatings of Amercoat Div., American Pipe & Construction Co., are fully described in a new catalog.

18. Interchangeable attachments for all purposes for use on Clark fork trucks are described and illustrated in a booklet available from Clark Tructractor.

19. The job of all employees and supervisors in fire protection is discussed in the October issue of *American Mutual Magazine.*

20. Perma-Pulley, a permanent, Alnico, magnetic-head pulley for belt-conveyor systems is described in a folder offered by Dings Magnetic Separator Co.

21. Vitron glass fibers are discussed in a brochure issued by Glass Fibers, Inc., and data on manufacture, properties, and uses are given.

22. Electrical tachometers for industrial applications are shown and described in a booklet issued by Weston Electrical Instrument Corp.

23. A manual of tube fitting, covering types of tubes, tools used, jointing, circuit planning, and containing technical and engineering data is available from Parker Appliance Co.

24. Hycar rubber latices of B. F. Goodrich Co. are described in technical service bulletin 47-41.

25. Time, cost, and overhead control by use of Executone voice-paging and music systems is described in a folder issued by Executone, Inc.

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28. Selection and application of air diffusers are completely covered in a new catalog and engineering book, K-20, on Kno-Draft diffusers of W. B. Connor Engineering Corp.

29. Electric lift and travel trucks made by Yale & Towne Mfg. Co., their specifications and application, are described in a booklet issued by the manufacturer.

30. Arquads, alkyl quaternary ammonium salts made by Armour & Co., and their germicidal, odor-removing, detergent, and other properties are described in a recent folder.

31. Enclosed switches, Type N2, which are protected from dust, oil, or water are described in a folder available from Microswitch Co., Freeport, Ill.

32. Electrical tape which insulates and weatherseals in one operation is described in a catalog sheet issued by B. F. Goodrich Co. on its "2 in 1" tape.

33. Texture imparted to fiber blends by Teca crimped acetate-rayon staple is discussed in a recent issue of *The Traveler,* publication of Victor Ring Traveler Co.

34. Steam generators made by Springfield Boiler Co., are described, and typical applications shown in a recently issued booklet.

35. Specialized testing equipment, as time, speed, torque, force, color, chemical analysis, resilience, vibration, sound, vacuum, and other measuring devices, are listed and described in a catalog offered by General Electric Co.

36. "X-ray Diffraction Camera for Microtechniques" is the title of a folder describing a new camera especially adapted to fiber analysis available from North American Philips Co.

37. V-belt sheaves of American Gear & Mfg. Co. are listed, along with engineering data, in a recent catalog.

38. Magnetic equipment for removal of tramp iron from textile materials is shown and described in a folder offered by Eriez Mfg. Co.

39. A sewing instruction book on Feldlock and Dualfeed machines is available from Willcox & Gibbs Sewing Machine Co. to owners, mechanics, and operators.

40. A high-velocity, permanent, cleanable air filter, Agitair type FM, is described and typical applications shown, in a booklet available from Air Devices Inc.

41. The overhead, ball-bearing, conveyor trolley of Link-Belt Co., is described in folder 2241. Drawings and engineering data are included.

42. Water analysis, a 100-page treatise on methods of analyzing water for municipal and industrial use, is available to chemists and engineers from Solvay Process Co.

43. Side-suction centrifugal pumps made by Deming Co. are described and illustrated in a recent folder.

44. Differential controllers for flow and liquid level are covered in an illustrated catalog available from Brown Instrument Co. Construction and application data are included.

45. Special handling accessories and attachments for Towmotor lift trucks are described in No. 2 of Vol. 5 of *Handling Materials,* a publication of Towmotor Corp.

46. Interchangeability of Leslie Co.'s line of regulators is discussed in the company's bulletin 468.

47. Line flash-tank and heat-exchanger systems for recovering heat in boiler-blowoff water are described in a publication of Cochrane Corp.

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49. Corrosion resistant materials and equipment, including ceramic bodies, thermosetting resins, acid-brick, lead, tubing, protective coatings, and others are described in Bulletin K of U. S. Stoneware Co.

50. A variable-speed, fractional horsepower transmission, the Speed-Jack drive, is discussed in a folder issued by American Pulley Co.

51. A study of elevator accidents, showing type and frequency of accidents and how they may be prevented, is available from Otis Elevator Co.

52. Bore glass specialties for laboratory use are listed in a folder issued by Fischer & Porter Co.

53. Prevention of scale formation in water used for cooling is the subject of a leaflet offered by Liquid Conditioning Corp.

54. A guide for contract forms for sales agreements between manufacturers and agents is available from Commerce & Industry Association.

55. Portable power conveyor systems for conveying, unloading, and stacking are described in a folder issued by Food Machinery Corp.

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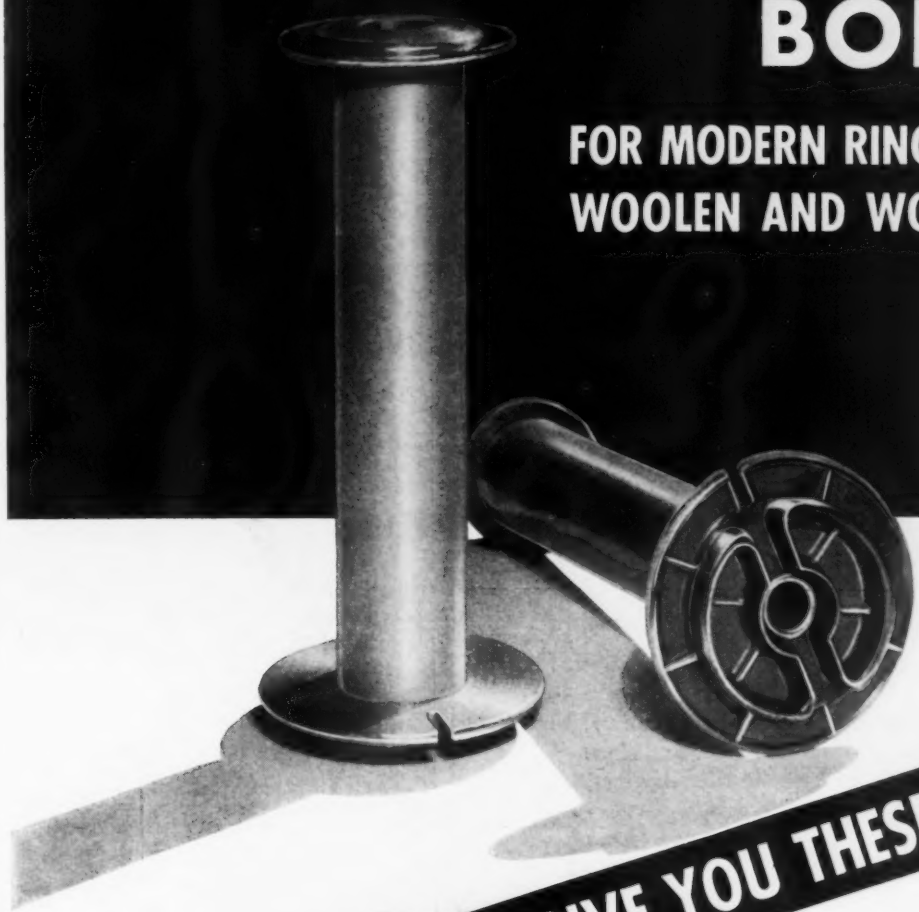

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Questions AND Answers

Profit-Sharing Plan Interests Mill Man

Technical Editor:

Have you any information regarding a profit-sharing plan for textile mill employees? We should like to learn the basis on which such a plan is calculated. (9211)

One profit-sharing plan, in effect for several years in a large group of textile mills, is based on paying the employees bonuses out of the net profits of the company in excess of 5% return to the stockholders. The company pays the employees the "going wage" in its branch of the industry in its geographical area. Then after the 5% return is distributed among the stockholders, the remainder of the net profit of the company is divided 50-50 among the employees and the mills.

The bonus is paid at intervals of four weeks, the year being divided into 13 four-week periods; and all employees who have been with the company twelve weeks or longer participate in the bonus. The only exceptions are the chairman of the board, the president, and the executive vice-president.

In practice, a "Base Period" is used to compute the over-all amount of money that is to be paid in bonuses. There are 13 Base Periods in each year; but for computation purposes, three consecutive four-week periods are used for figuring the amount due for a particular "Payment Period" (four weeks).

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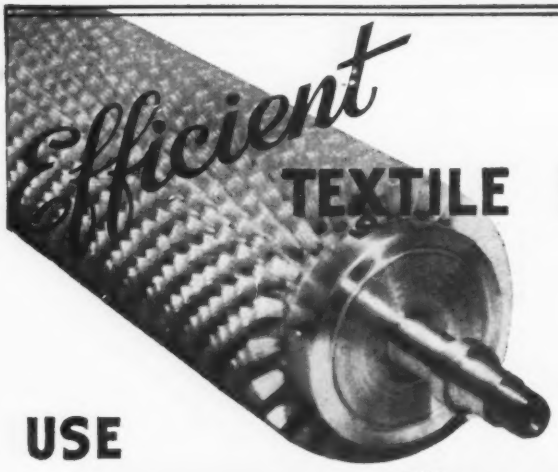

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and, second, upon the amount he has earned during the twelve-week period as regular wages, as shown by the payroll records. The bonus is paid to the employee by a separate check. Thus, every four weeks, the employee receives four weekly pay checks and one bonus check.

Since an employee must have been with the company twelve weeks or longer to participate in the bonus, a small amount of the fund is left on hand at each Payment Period. This amount is added to the general bonus fund for the next Base Period.

Stroke of Rub Aprons Depends on Wool Stock

Technical Editor:

What is your opinion on the following points relating to condensing roving on a woolen card?

1. What would be the effect on the roving if the lateral motion of the rub aprons were to be increased?

2. Is there such a thing as an optimum stroke or lateral motion of the apron?

3. What would you consider the minimum permissible stroke? (9205)

1. An increase of the lateral motion of the rub aprons makes the roving hard and close; a decrease makes the roving lofty. The lateral motion should therefore be increased only if more condensing of the stock is necessary.

2. The stroke to use depends largely upon the wool fibers being carded. Coarse and wiry stock needs more condensing; and to obtain it, the stroke must be increased. Fine and medium stocks can be rubbed more gently and will come out uniform.

3. The minimum stroke also depends upon the stock. The average speed is about 300 to 325 r.p.m. On medium or fine stock, this speed may be reduced about 10%; and on some coarse grades of stock, this speed may be increased to as much as 400 r.p.m., providing the eccentrics that drive the aprons are built sturdy enough to stand that speed and the floor can hold up under the vibration.

Late Harness Timing Aids Weaving of Crepe

Technical Editor:

Can you give me some information in regard to weaving a French crepe? Following is the layout:

150 ends per in.—warp, 72/20 Celanese

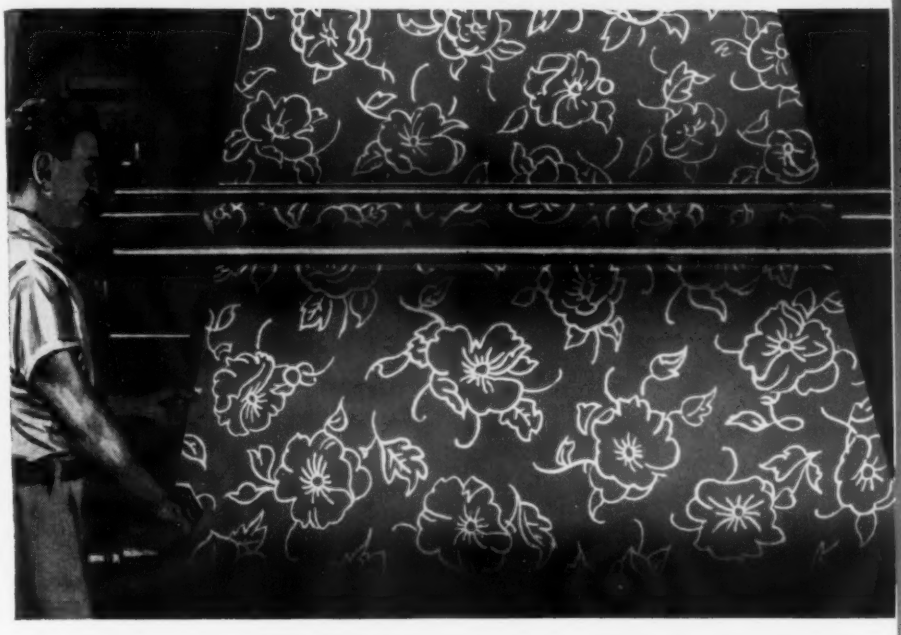
100 picks per in.—filling, 75/30 bright rayon

6,400 ends, plain weave on a 46-in. Draper loom, speed 172 p.p.m.

What is the recommended harness tim-

PROCTOR EQUIPMENT FOR THE

TEXTILE FINISHER



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a versatile dryer employing a new and different type of circulation

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a moderate capacity machine; can be designed for drying or curing

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a high capacity machine; can be equipped for drying or curing

DAGLISH *Overfeed* TENTER

for obtaining desired "hand" through principle of overfeeding and tenter drying

MULTIPASS *Airlay* DRYER

for achieving the ultimate in finished appearance of goods dried without tension

"SLACK" DRYER

for use in shrinking range on goods to be shrunk in both warp and filling direction

The growing trend to supplying finishing plant equipment *in range* makes it doubly wise to give early consideration to your needs as you anticipate expansion or modernization . . . and to select with extra care the *one* supplier whose intimate knowledge of equipment and processes will enable him to make intelligent recommendations. Proctor & Schwartz' long association with the textile industry—coupled with Proctor research men constantly working with textile technologists as new developments unfold—plus the fact that no Proctor equipment is ever recommended until its performance can be guaranteed in writing in the sales contract—indicates that your best bet is to consult Proctor & Schwartz as soon as the need for new equipment becomes apparent.

Write for this New Proctor Booklet

While intelligent recommendations on the type of equipment most suitable for your particular requirements can be made only on the basis of complete knowledge of your problem—there are certain basic types of equipment engineered and built for the textile finishing plant. A profusely illustrated, 16-page booklet which tells the story of Proctor Equipment for the Textile Finisher has just come off the press. You'll find it very informative and well worth having. Write for your copy today—while the supply lasts.

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Here's how a South Carolina mill speeds their materials handling. No delays, no soilage, no door damage . . . not even necessary to slow the "buggy" down. Stanley Magic Doors open and close automatically.

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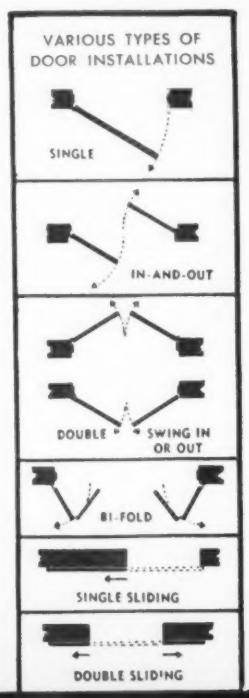
on your handling costs

EVERY instant one of your workers spends opening or closing an ordinary door costs you money, regardless of how efficient your flow chart and equipment may be. Put a time study man at one of these doors for a day or two. Check how much time is lost, then convert this into dollars per year, multiplied by the number of doors in your plant.

And you can add to this the loss from product soilage and damage when trucks are used to bang open doors.

With Stanley Magic Doors all this loss is prevented. Photo electric eyes automatically open and close doors, speed traffic *safely* and guard the efficiency of heating and air conditioning systems. *Write for additional information. Stanley Works, Magic Door Division, New Britain, Connecticut.*



STANLEY
Trade Mark

STANLEY MAGIC DOORS
Require No Hand to Open

ing for this weave? Would weaving without selvages aid in preventing the filling from cutting? What is a good relative humidity for this fabric? (9201)

You should time your loom for weaving this fabric at front center and use selvage yarns from the regular ground, without extra shafts or selvage harness. You probably will find that more trouble develops along the edges with chafing warp yarns than trouble from filling breakage. For this reason, some mill men prefer to weave selvages from bobbins running 2-picks in a hole rather than the usual tabby weave of the crepe.

A relative humidity of about 58 to 62% at a temperature of 86 to 90° F. should be satisfactory. After a few days running, the desired figures can be determined.

If you are troubled with a rough appearance, time the harnesses approximately ⅛ in. before front center. However, if the weave is satisfactory on a late time, the timing can be as much as ¼ in. after front center, which helps to prevent chafed yarn and filling cutting along the edges.

Instruments Measure Calender Production

Technical Editor:

We are interested in measuring and recording the output of our calenders. We particularly want to measure: (1) yards run per 8-hr. shift, (2) down time, and (3) speed at which cloth is calendered during each minute of the hour. We should like the calendering speed to be recorded continuously on a chart. Can you advise us how these tasks can best be done? (9208)

Your problem of speed and production records on calenders can be solved by using a recording tachometer to chart the speed and down time and a yardage clock to show the yards run on each shift.

In order to get the actual cloth speed and number of yards, it would be better to install a measuring roll of an exact circumference, such as ½ yd., somewhere on the machine. This roll should be light and easily turned, with a nonslip covering of friction tape or similar material. The tachometer drive should be attached to one end of the roll and the yardage clock to the other.

The recording tachometer is more or less standard; but to meet your needs, it would have to be made with a scale to suit your measuring roll and range of cloth speeds.

The yardage counter may be of the simple hand-reset type that would be read at the end of each shift, or it may be of the key-locked type with a sepa-

Seasons Greetings

AND BEST WISHES FOR
THE NEW YEAR

Boger and Crawford

CLARK

"CLARK TRUCTRACTOR *Stole the Show!*"

That was the consensus of visitors to the First National Materials Handling Exposition.

You can count on Clark Tructractor to "steal the show" again at the second Exposition in Cleveland, January 12 through 16, 1948, with a display of sound and practical new handling ideas: Fork-Lift Trucks, Towing Tractors and attachments — products incorporating Clark's traditional quality and unrivaled experience.

If movement of materials enters into any phase of your operations, a visit to Clark's exhibit is a MUST. Booths—407-8-9 and 419-20-21.

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CLARK EQUIPMENT COMPANY, TRUCTRACTOR DIVISION, BATTLE CREEK, MICHIGAN
REPRESENTATIVES IN PRINCIPAL CITIES THROUGHOUT THE WORLD

rate counter for each shift. If the clock is driven by a measuring roll, the maker of the clock would need to know the exact circumference of the roll. If it operates from a small pair of wheels that ride on the cloth, this information is not necessary.

Wale in Knitted Fabric Is Clearly Defined

Technical Editor:

We should appreciate your assistance in establishing a determination of the number of wales per inch, with regard to the wales per inch in knitting, in the inclosed knitted fabric.

Webster's dictionary defines the word "wale" as a ridge in the weave of a cloth. However, we should like to have an explanation as to wales in knitted rib fabrics. For instance, if there are 15 wales or ridges to the inch as you face the cloth, should the cloth be labeled 15 wales per in., or should you also count the back wales and label the cloth as 30 wales per in.? (9212)

As defined in "Textile World's Knitting Mill Handbook of 1924," a wale is "a series of loops forming a line lengthwise of the fabric, formed by one needle."

Evidently, the cylinder and dial used in knitting the knee warmer submitted were cut for 60 needles each. You should count both the face and back wales, although some knitters prefer to count only the face wales. The wales are usually counted at the narrow part of the fabric. Sixty wales across the rib divided by 2.375 in. equals approximately 25.5 wales per in.

The ends of the warmer apparently were knitted half cardigan—every other course on the cylinder needles being tuck stitch. For full cardigan, knit in the same way on both sets of needles but alternate the tuck-stitch courses.

Acetate-Rayon Fabrics Do Not Need Saponifying

Technical Editor:

The inclosed sample of acetate-rayon fabric has been saponified, dyed, and printed. The ground was dyed with direct colors; the print color is a vat. You will notice in this sample a decided streak in the warp. Can you give us any information as to the cause of this streak? (9198)

A streaked or uneven appearance is not uncommon in a saponified acetate-rayon fabric; but in medium or dark shades, the unevenness is not apt to show up so prominently as in pastel shades. The condition is apparently a result of different characteristics of different acetate yarns, where the

on how Aluminum Extrusions can save you money...serve you better

THE above illustration is produced both as a reminder and proof of the wide application for aluminum extrusions in modern textile machinery design. And the shapes pictured are but a small fraction of the parts actually extruded by Reynolds for your industry. They are furnished in any desired length, from a few inches to 30 feet or longer.

Reynolds heat-treated aluminum is available in a wide range of alloys to meet the strength requirements of most every service. Its weight is but ⅓ that of steel and cast iron, thereby cutting dead weight, reducing inertia forces. There is no cracking, splintering, or distortion.

Aluminum can't rust. In normal textile mill atmospheres its bright natural finish requires no paint protection or maintenance. Costly yarn stains from moisture condensation are eliminated.

Now add to aluminum's basic advantages the economies of fabrication by the extrusion process. Special sections can be designed efficiently to meet your particular requirements: to facilitate joining; to add a rib or lug or bulb where desired; to reinforce cross sections that are heavily stressed, and to take unnecessary metal out elsewhere.

Tool costs are very low. Machining operations are held to a minimum. No matter how simple or complicated the shape, you're assured important man and machine hour savings.

Where can aluminum extrusions serve you best at a saving? A Reynolds textile engineer will be glad to assist you in finding such practical and profitable applications. For complete information, write our nearest field service office, or Industrial Machinery Division, Reynolds Metals Company, 310 Hanna Building, Cleveland 15, Ohio.

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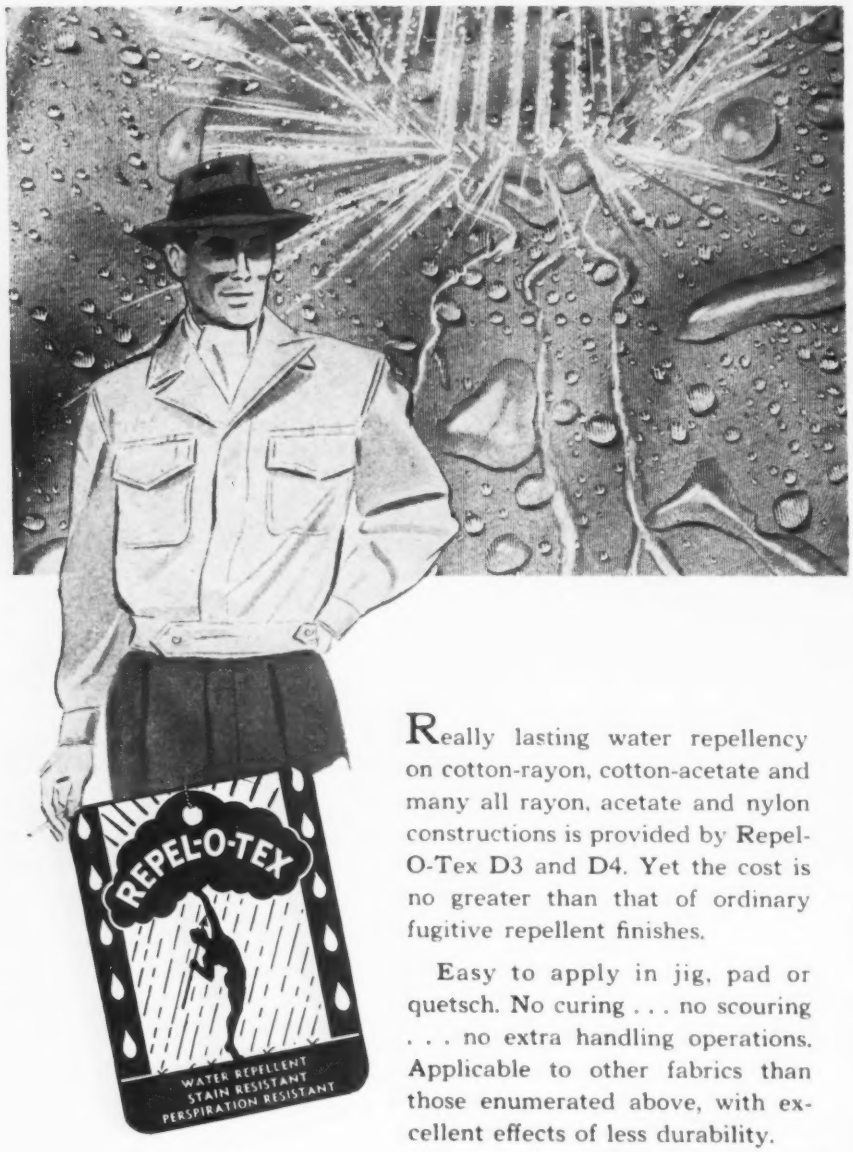
REPEL-O-TEX D3 & D4

for Low Cost... Durable Repellency



Really lasting water repellency on cotton-rayon, cotton-acetate and many all rayon, acetate and nylon constructions is provided by Repel-O-Tex D3 and D4. Yet the cost is no greater than that of ordinary fugitive repellent finishes.

Easy to apply in jig, pad or quetsch. No curing . . . no scouring . . . no extra handling operations. Applicable to other fabrics than those enumerated above, with excellent effects of less durability.

May we arrange for a trial run?

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onyx CHEMICALS FOR DYEING AND FINISHING

weaver mixes yarn from different sources in his warps. Of course, various types of acetate yarns react quite differently to saponifications, so that there is greater or less dye affinity for direct colors among the types of yarn.

If the goods had not been saponified, they most likely would have dyed level. In the dyeing of light ground shades to be followed by a dark overprint, it is often unnecessary to go to the trouble and risk of saponifying the goods. Selection of direct dyes that stain acetate will give the ground a uniformly level appearance without the necessity for saponification.

Pigment in Oil Is Satisfactory Tint

Technical Editor:

We are putting into production several different types of cloth in which the yarns are very much alike, both in appearance and size. Our problem is to keep the yarns from being mixed at the winders and in the filling bins.

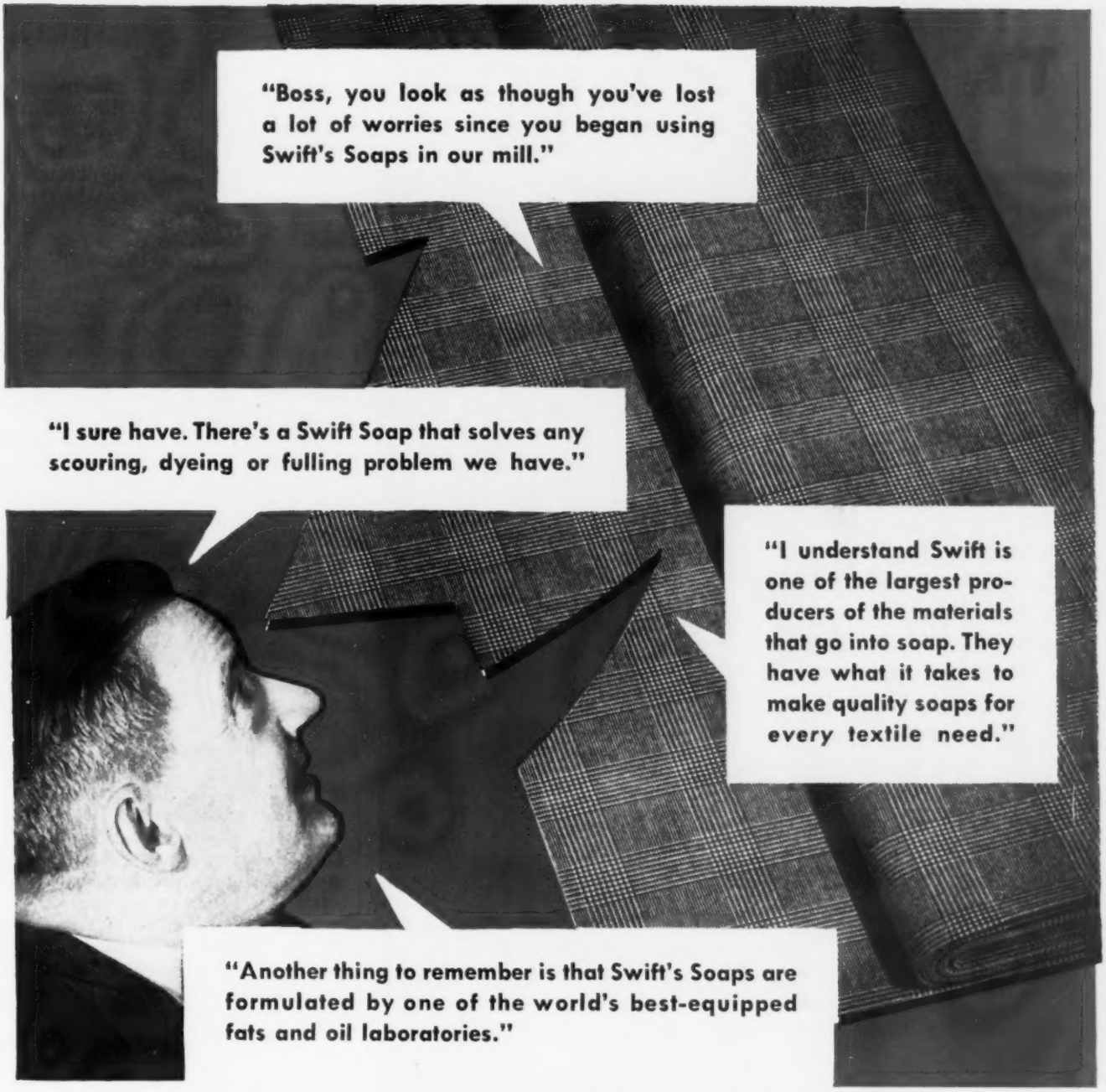
Since these fabrics are to be in pastel shades and whites, we are dubious about trying any of the fugitive dyes previously used in tinting our stocks; they did not always wash clear. About 15 yr. ago, we bought tinted mohair and noils that rinsed out practically clear in cold water.

Do you know what other mills are using for tinting wools in the picker house? We should like to use something that could be used in a power spray so that it will not be necessary to color the emulsion and so that more colors can be used without too much trouble. (9210)

There are pigment tinting colors available that are dispersed in a sulphonated oil which can be diluted with water and sprayed on stock. These pigments are available in about seven or eight different colors. You will have no difficulty in removing the tints if you give the fabrics a dolly-soap scour.

In tinting stock, roving, etc., it is often difficult to obtain what you desire throughout the manufacturing and finishing of the fabric. If you use too much pigment tint, it may interfere with the quality of the fine yarn you wish to make. If the gray cloth is given a continuous soaping without much mechanical action, the pigments will not wash out.

Your choice of tinting colors, therefore, depends upon the fineness of the yarns to be made and the finishing procedure. In the case of fine worsted yarns, you may have to resort to the use of very level-dyeing, acid wool dyes that will boil off in the dye kettle and will not interfere with the shade. These acid wool dyes are also suitable if the cloth soaping is to be so light that pigments would not come out.


"Boss, you look as though you've lost a lot of worries since you began using Swift's Soaps in our mill."
"I sure have. There's a Swift Soap that solves any scouring, dyeing or fulling problem we have."
"I understand Swift is one of the largest producers of the materials that go into soap. They have what it takes to make quality soaps for every textile need."
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Available through 540 Swift Distribution Points:

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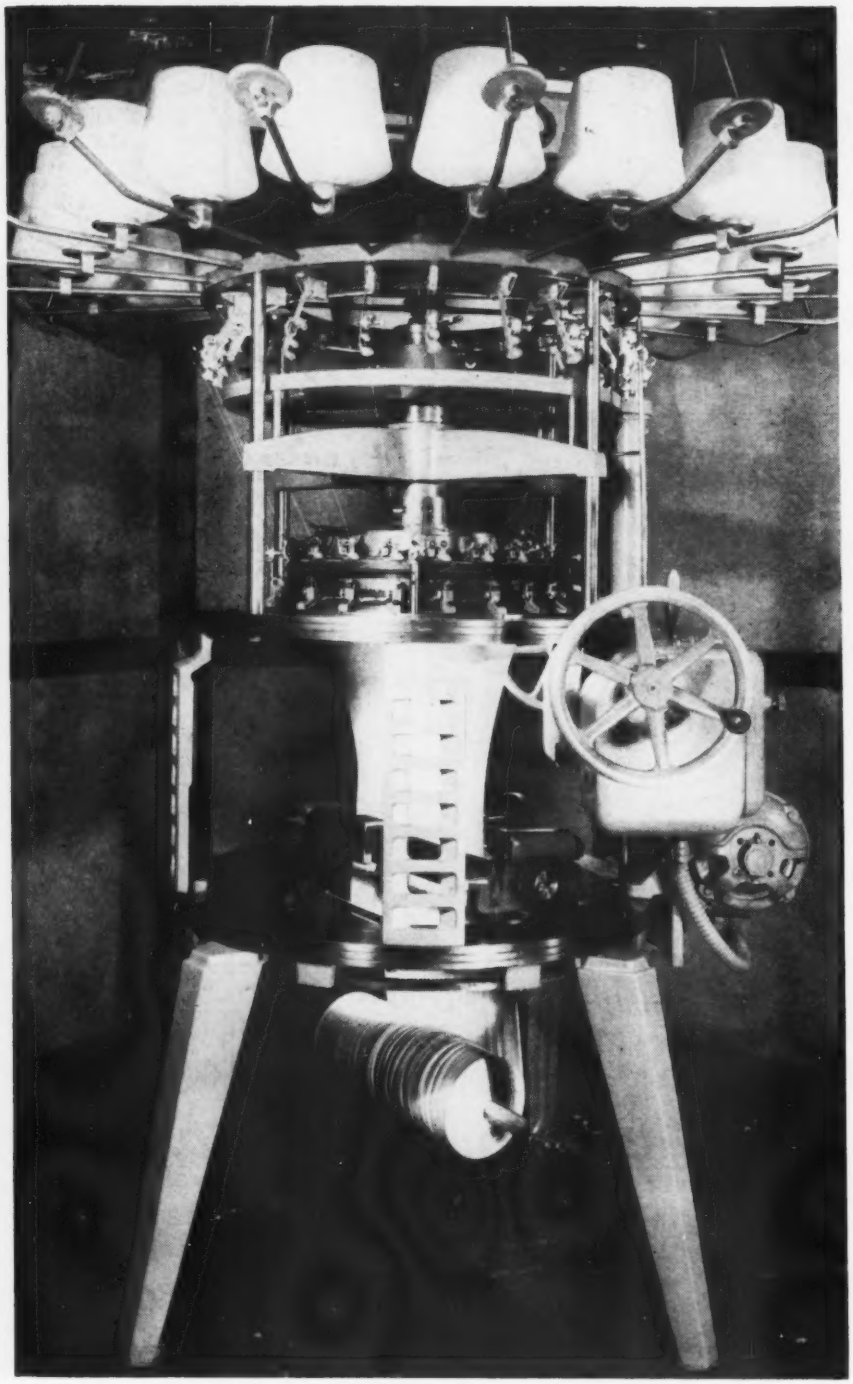
There's a place in your mill for

TYPE AM MULTIFEED RIB MACHINES



Illustrated: 20" • 20 feed • 14 cut machine

Features . . . .

- Gear driven dial
- Oversized dial shaft
- All ball bearing enclosed drive
- Multidisc clutch
- Free wheeling for easy hand turning
- Adjustable motor mount
- Belt driven take off with infinite speed changes
- Clutch actuated roll up for even tension
- Simplified caming system both on cylinder and dial
- One feed per diameter inch
- Sizes in production from 9" to 25" inclusive
- All gauges from 8 to 16 cut
- Early deliveries on all machines

Can be seen at our plant at all times

EDMOS PRODUCTS CORPORATION

13 Christopher Ave. Brooklyn 12, N. Y.

Carding Practices

(*Continued from page 147*)

of grinding that the cylinder receives.

The reasons given by this mill for using a slow grinding speed for the doffer were the mechanical saving of the moving parts, the saving of time by not having to change gears to speed up the doffer, and the lesser accident hazard of slow grinding.

Four mills reported that they prefer fast grinding speeds for doffers. One of these mills stated that fast grinding makes it possible to secure smoother settings of the doffer.

QUESTION NO. 5: *Which are better, common or metallic rolls on drawing? Would it be advisable to change drafts between rolls on drawing frames from the standards set up by the machinery manufacturers?*

Both types of rolls are used at Pepperell Mfg. Co., Opelika, Ala., it was reported. One mill operated by this company is equipped with metallic rolls, and another mill is equipped with synthetic-covered rolls. The metallic rolls were said to be better for heavy sliver, such as 66 gr., and the synthetic rolls are preferred for light sliver, such as 50 gr.

More even drafting is obtained at Opelika Textile Mills, Opelika, Ala., by the use of two metallic back rolls and two synthetic-covered front rolls, it was said. This mill runs 55-gr. sliver. The metallic rolls were said to have a better bite than synthetic rolls and are better at the back where the job of breaking down the compressed card sliver must be done, while synthetic rolls on the front give a softer draft after the breakdown of the sliver has been accomplished. All four bottom rolls are metallic.

It was the opinion of this mill that roll settings and drafts between rolls must be made to suit the conditions of the mill, regardless of recommended standards.

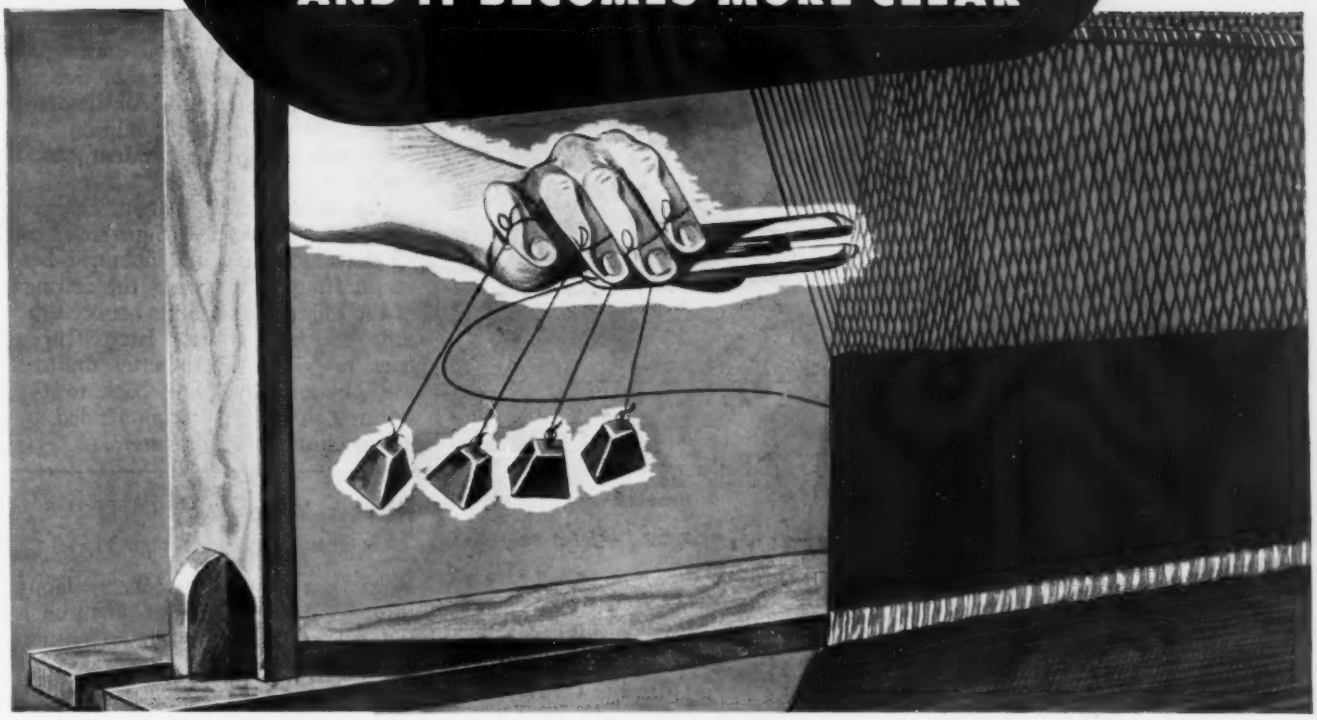
Metallic rolls are preferred at Lanett Mill for medium and heavy slivers (50 gr. and up), it was said.

One mill reported test results on metallic and common rolls. Two frames equipped with metallic rolls and two frames equipped with metallic backrolls and synthetic front rolls were selected for the test, and an outside man was brought in to run the test. Stock run through the test frames in both single and double processes was followed through the mill. The drafting schedule consisted of 65-gr. sliver, 1.70-hank roving, and 12s to 16s yarn.

No difference in the breaking strength of the yarn was observed, insofar as the synthetic or metallic rolls were concerned. However, the syn-

Think back to fingers

AND IT BECOMES MORE CLEAR



Every moving part in your textile mill which is heavier than it needs to be is costing you money.

Suppose a ball and chain were tied to a weaver's fingers. The drag would show up most when the hand changed direction. Energy lost in stopping and starting is greater in heavy objects than light objects and it costs money.

That's why American Magnesium parts are worth their lack of weight in gold. Magnesium is 35% lighter than aluminum, 75% lighter than steel. Furthermore, it is corrosion resisting and non-warping. American Magnesium is being successfully used for a long list of textile parts. See that your machinery builder gives you the full economy of American Magnesium's lightness. ALUMINUM COMPANY OF AMERICA, sales agent for American Magnesium products, 1705 Gulf Building, Pittsburgh 19, Penna. Sales offices in principal cities.

TEXTILE EQUIPMENT BUILDERS

Write for your copy of "Magnesium in the Textile Industry". Contains full information on textile applications, advantages, and semi-fabricated forms.

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SUBSIDIARY OF ALUMINUM COMPANY OF AMERICA

A-P-T-

Tapered WARP
SPINNING BOBBIN

STANDARD EQUIPMENT
TESTED AND PROVED!

STEEL REINFORCED PLASTIC REINFORCED

The A. P. T. Tapered Warp Spinning Bobbin has proved its efficiency by use and acceptance for many years in the great majority of mills which have installed new spinning machinery. It has become the standard bobbin of the industry for new warp spinning frames.

The reasons for the success of this yarn carrier are as follows:

1. More and better spinning production due to the tapered construction of the bobbin. The larger diameter at the bottom puts less strain on the yarn at the start of the spin which means fewer ends down.

2. More and better production in spooling and rewinding operations. The yarn comes off better from a tapered bobbin.

3. Easier doffing at the spinning frame. Spindle tip suspension and tough but resilient construction of bobbins permit positive seating with finger tip pressure. Thus the bobbins come off easily.

OTHER ADVANTAGES

Like other A. P. T. Yarn Carriers, this tube is made of laminated paper impregnated for moisture resistance and hardened by baking. It is highly resistant to distortion, chipping and splitting, will not splinter and is free from static. Deep, well rounded corrugations permit free but controlled delivery.

Check with your spinning machinery or spindle manufacturer for further information on the advantages of the A. P. Tapered Warp Spinning Bobbin.

AMERICAN PAPER TUBE COMPANY

ESTABLISHED 1898

WOONSOCKET, R. I. GREENVILLE, S. C.

Canadian Representative: Hugh Williams and Company, Toronto, Canada

thetic rolls yielded 35 to 40% less production at the drawing frame.

This mill also recommends changing the standard roll settings and drafts to accommodate conditions in the mill. As an example, the mill began compressing its card sliver and had to change the settings and drafts on the drawing rolls to meet the new condition.

Another mill reported that it uses two processes of four-roll drawing in one mill and one process of five-roll drawing in another mill. All the drawing frames are in good condition, and both mills are doing equivalent jobs at the same costs.

One mill stated that it changed from 55-gr. sliver to 65-gr. sliver on its drawing frames and obtained better drafting by changing the settings of the rolls and the drafts between the rolls. However, when it later changed back to 55-gr. sliver, better drafting was obtained by going back to the settings and drafts recommended by the machinery manufacturer.

Rayon Weaving

(*Continued from page 115*)

moist dust in the air, collect among the reed dents. As knots go through the reed, a squeezing action ensues; and some of the dirt too often finds its way into the knots. Even reed cleanings conducted every two or three cuts fail to check this condition. It is a well-known fact that on acetate fabrics considerable difficulties are experienced in washing soiled knots clean.

6. *Side Motion.* It is found desirable to allow to the reed a certain amount of side motion freedom within the reed frame to permit following lateral warp displacements.

HARNESSES. The general practice applicable to the processing of cotton and spun rayon applies to continuous filament rayon with the proviso that all well-known yarn-protective measures are to be considered of the "must" type. Smoothness of equipment and amount of space taken up within the harness by the heddles are both important factors.

Experience indicates that the flat steel heddle is the most satisfactory all-around heddle for rayon weaving. Various sizes of heddle wires and eyes are recommended according to the denier run. Forty conventional heddles per in. and per shaft may be considered as a practical maximum. Duplex heddles permit the use of fully 60 heddles per in.

The choice of frames having sufficient strength and rigidity, equipped with heddle bars so adjusted as to permit the free sliding of heddles, is just

Better wetting action

Stability to acid or alkali

More level dyeing

Resistance to hard water

Better dispersion and rewetting

Extra strength detergency

ALKANOL* B
ALKANOL* RW
ALKANOL* WXN
DUPONOL* D
DUPONOL* G
DUPONOL* LS
DUPONOL* WA
DUPONOL* 80
HYDRAPHTHAL*
MP 189
MERPENTINE*
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MERPOL* C

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He's found the answer!

Du Pont Surface Active Agents can help you solve your knottier textile problems, too. Yes, if it's results you want, you can count on this line of products.

Du Pont textile research is always at your service—ready to help put the proper Du Pont Surface Active Agents to work for you. Don't delay! Call on our technical staff today. Fine Chemicals Division, E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware. Branch offices: Atlanta, Boston, Charlotte, Chicago, New York, Philadelphia, Providence, San Francisco.

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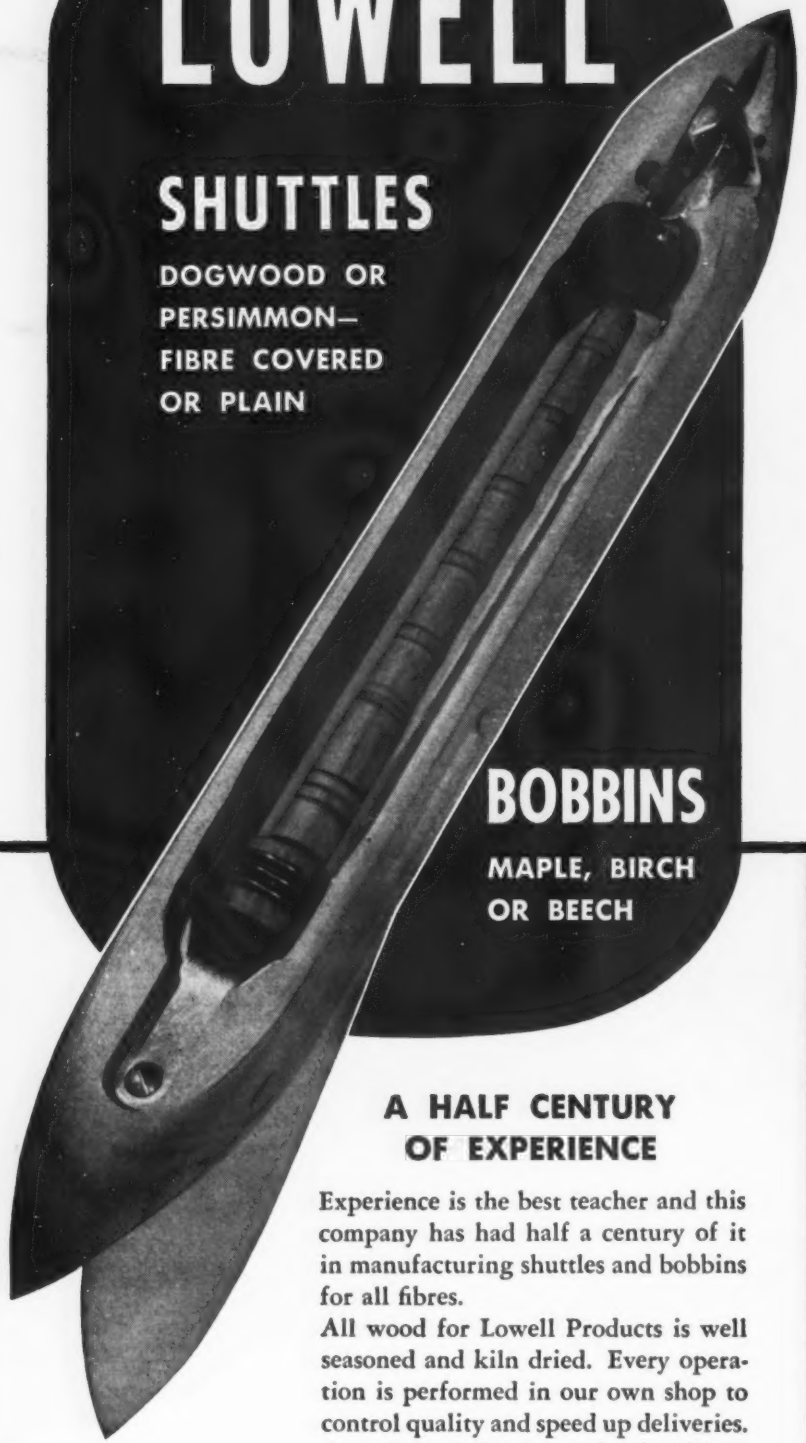
LOWELL

SHUTTLES

DOGWOOD OR
PERSIMMON—
FIBRE COVERED
OR PLAIN



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MAPLE, BIRCH
OR BEECH

A HALF CENTURY OF EXPERIENCE

Experience is the best teacher and this company has had half a century of it in manufacturing shuttles and bobbins for all fibres.

All wood for Lowell Products is well seasoned and kiln dried. Every operation is performed in our own shop to control quality and speed up deliveries. Any desired finish can be furnished. May we hear from you?

LOWELL SHUTTLE COMPANY

Established in 1896

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as important as the choice of the proper heddle itself.

Once the suitable type of equipment is obtained, the desirable practice to follow is:

1. Avoid crowding the harness with too many heddles per inch and per shaft.
2. Keep the heddles clean through adequate washing at warp-change time.
3. Replace damage and sharp heddles as soon as they are noticed, bearing in mind that it is not always the heddle actuating the broken or chafed end that is at fault.

LET-OFF MOTION. The flaws of a warp let-off motion operation are more likely to stand out when weaving a plain-acetate or viscose-rayon fabric. The smooth face of the cloth fails to conceal any surface fault, and the evenness of the yarn seems to point an accusing finger to any unevenness.

Automatic let-offs offer obvious advantages over rope let-off motions, for their mechanical operation is more positive and free from the influence of humidity changes. As anything else, however, they wear out, particularly when required to operate under too great a tension.

Rope tension let-offs, when applied in connection with large and clean tension heads, under proper humidity control, can be made to operate quite satisfactorily on the most delicate rayon fabrics. Coiling of the rope on the tension heads is an important factor. Suitable and erroneous arrangements are shown in the accompanying diagrams.

HUMIDITY. Viscose rayon, being highly hygroscopic, absorbs moisture at a fast rate, releases it slowly when exposed to ordinary room temperature, and retains about 2% more moisture on a downward readjustment at room temperature.

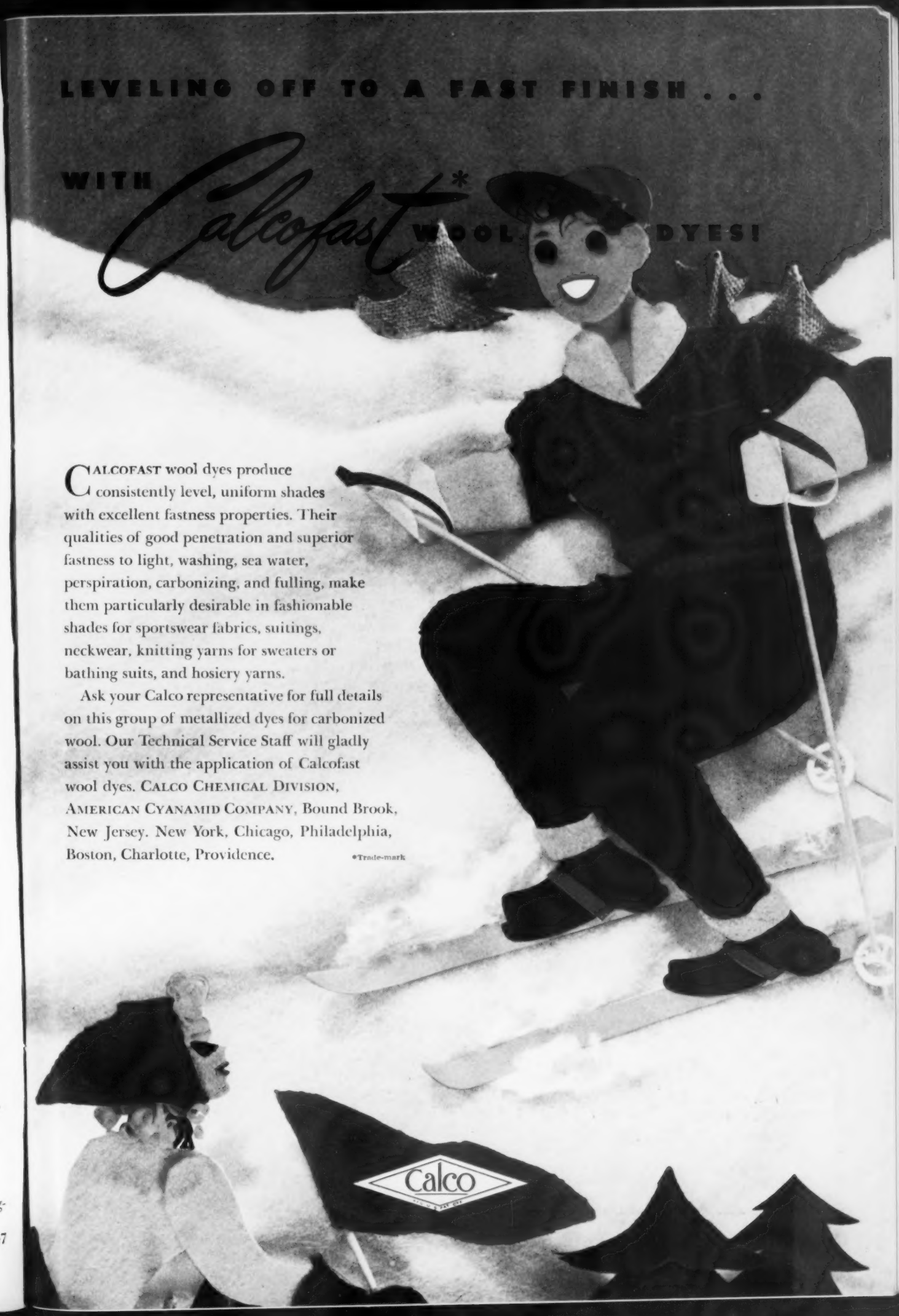
Acetate rayon is far less sensitive within the normal moisture range because it is less hygroscopic. At 75° F. rayon will show a regain of 11% at 54% r.h. At 75° F. acetate rayon will show a regain of 6½% at 65% r.h.

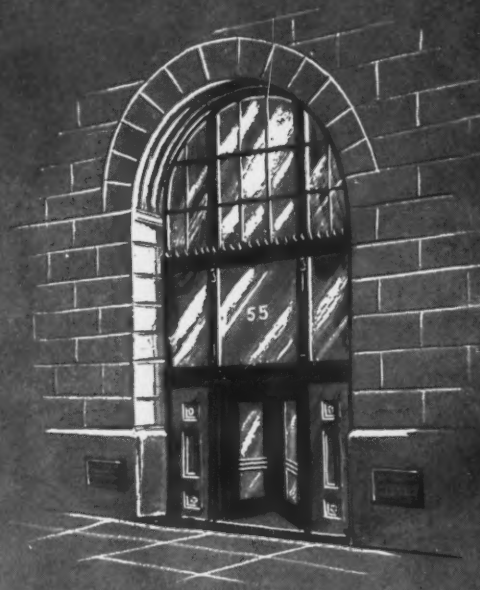
It is felt that the ideal condition for a rayon-weaving plant is to keep the stock room and all operating departments within a close range as to relative humidity, having the lowest r.h. in the stock room and the highest in the weave shed, with the total difference not exceeding 5%.

The following weave shed conditions are offered for consideration:

	Dry Bulb	*R.H. %*
Viscose Rayon	78° F.	60%
Acetate Rayon	78° F.	65%
Spun Rayon	78° F.	70%

A dry bulb reading of 78° F. is sug-


LEVELING OFF TO A FAST FINISH . . .
WITH Calcofast* WOOL DYES!
CALCOFAST wool dyes produce consistently level, uniform shades with excellent fastness properties. Their qualities of good penetration and superior fastness to light, washing, sea water, perspiration, carbonizing, and fulling, make them particularly desirable in fashionable shades for sportswear fabrics, suitings, neckwear, knitting yarns for sweaters or bathing suits, and hosiery yarns.
Ask your Calco representative for full details on this group of metallized dyes for carbonized wool. Our Technical Service Staff will gladly assist you with the application of Calcofast wool dyes. CALCO CHEMICAL DIVISION, AMERICAN CYANAMID COMPANY, Bound Brook, New Jersey. New York, Chicago, Philadelphia, Boston, Charlotte, Providence.
*Trade-mark
Calco



TEXTILE BANKING COMPANY

Inc.

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Puts your sales on a cash basis
Strengthens your cash position
Relieves you of credit losses

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gested in consideration of the comfort of the personnel. Higher dry bulb readings with equal r.h. will be found more to the liking of rayon, at the same time the absolute humidity obtained under such condition will be definitely increased. Saturated air (100% r.h.) at 40° F. contains 2.86 gr. of water per cubic foot; whereas the moisture content of saturated air at 100° F. weighs 19.97 gr.—almost seven times as much.

48-In. Loom Beam

(*Continued from page 137*)

good grooves in the shuttle and keep the eye clean and tight. Also, the shuttle spring has to be kept tight and in line with the shuttle eye.

"Bristles in the shuttle are very important. We use a pliable bristle without too much tension. In most cases, bristles from the common loom duster serve better than regular bristles.

"We have been using rabbit fur and find it is satisfactory. In some cases, we use a combination of bristles and fur.

"The general cause of filling breakage is improper adjustments of the loom; and to prevent breakage, the loom has to be set up properly."

Mill No. 3: "To bristle a shuttle properly, drill a hole in the shuttle even with the fourth ring. The hole for the top bristle should be ¼ in. from the top edge of the shuttle. The hole for the bottom bristle should be about ⅜ in. from the bottom edge of the shuttle. The bristles should give an even tension of the yarn. (We use horse hair.)

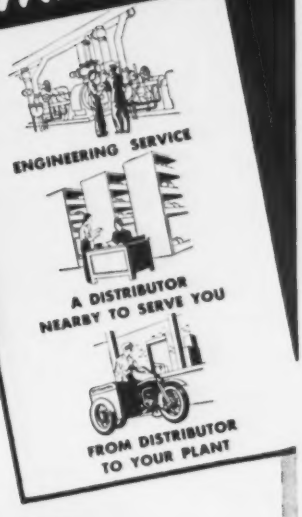
"Check the shuttle for burrs and sharp edges. Make sure that the shuttle eye is tight and the spring is straight so that the tip of the quill will center the shuttle eye. Check for grooves in the side and bottom of the shuttle."

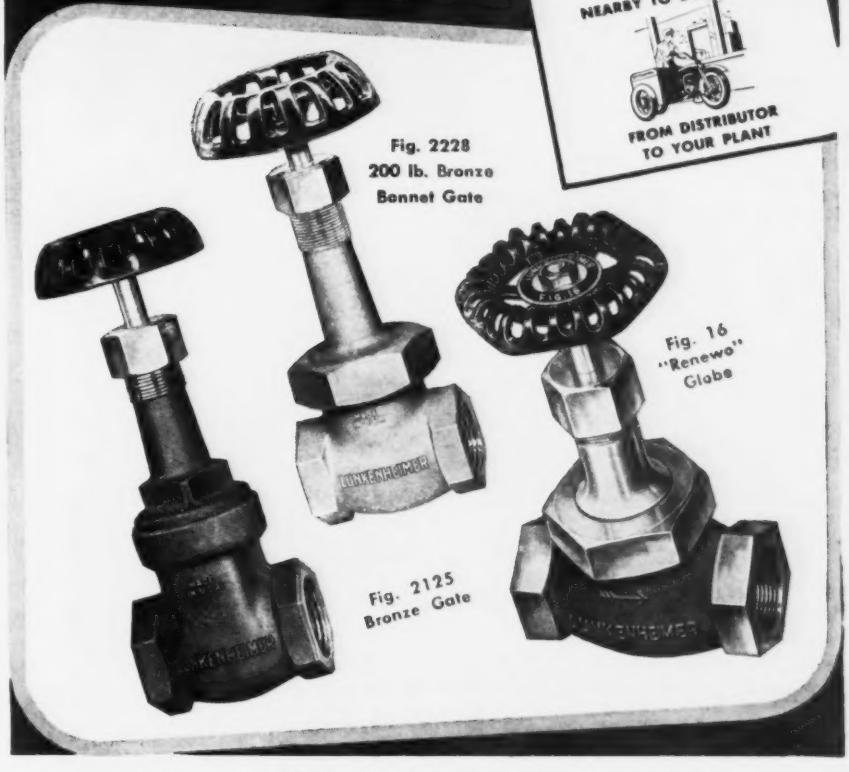
Mill No. 11: "The lay, lay ends, reed, and front and back box plates should be checked to see that they are leveled, squared, and lined. See that the shuttle is not picking early or late, but is picking when the crankshaft is on top center. Too much power on the pick motion will cause excessive wear on the shuttle and break the filling. The shuttle should box in each end of the loom without any rapping sound and should stick to the back box plate. Do part of the checking with the check strap, and do not pinch the shuttle by pushing in on the back part of the front binder and opening up the front of the binder. The check strap should have a 2½- to 3½-in. stroke, depending on the size loom.

"We use from 8 to 12 bristles to

Relied upon
BY VALVE MAINTENANCE MEN EVERYWHERE . . .
LUNKENHEIMER DISTRIBUTORS

RENDER A SERVICE THAT IS ESSENTIAL—A VITAL LINK IN THE CHAIN OF INDUSTRIAL PRODUCTION





Located in principal industrial centers, Lunkenheimer Distributors provide direct, readily accessible, time and money-saving service throughout the nation.

In addition to supplying high quality, long life Lunkenheimer Valves, they render valuable aid to maintenance men in the solution of both operating and maintenance problems.

This service isn't new . . . Lunkenheimer Distributors have been providing it for many years in the past, and will continue doing so in the future.

For this Distributor set-up is a basic, permanent part of the Lunkenheimer way—the *better service* way.

Remember—you can *always* depend on your nearby Lunkenheimer Distributor for expert, willing assistance in any problem or difficulty involving valve maintenance or operation. Call on him!

The Lunkenheimer Co., Cincinnati 14, Ohio. New York 13, Chicago 6, Boston 10, Philadelphia 34, Export Department: 318-322 Hudson St., New York 13, N. Y.

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$40,000 to California Winery
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Low-Cost Financing for Machinery and Equipment Purchases
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12-Month Terms . . . $37.50
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Throughout industry . . . in every part of the country . . . buyers are turning to our low-cost financing plan as a sound, businesslike way to buy the machinery and equipment they need . . . *without* tieing up funds that may be needed for working capital or other uses.

Our Machinery and Equipment Purchase Plan is available to finance all your purchases of new or used machinery and equipment . . . even equipment engineered and built to meet your special requirements . . . at uniformly low cost.

Under this plan, you make a nominal down payment and we supply the balance. You repay us monthly . . . with the help of increased earnings or economies effected by the equipment.

Complete information about the advantages of this plan is yours for the asking. Write or phone the nearest Commercial Credit office listed below. ***FOR QUICK ACTION*** — *Tell us: (1) the amount and kind of machinery or equipment you plan to buy; (2) how much financing you need; (3) over what period of time you want to spread payment. Frequently the loan is okayed and the money ready the same day.* Write or phone today!

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COMMERCIAL CREDIT COMPANY
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OFFICES IN MORE THAN 300 CITIES OF THE UNITED STATES AND CANADA

each shuttle, depending on the size yarn."

QUESTION NO. 11: *If possible, give a comparison of the maintenance cost of mechanical and electrical stop motions. What percentage of the loomfixer's time is consumed in maintaining the mechanical stop motion; in maintaining the electrical stop motion?*

Mill No. 10 wrote: "Maintenance time on electric stop motions is about 1 hr. per 100 looms per week, which is about half of what it would be on mechanical stop motions."

Mill No. 17: "Maintenance cost of mechanical stop motions will run two to three times as high as that of electrical stop motions. Loomfixer's time will be about 3% on the mechanical motions and less than 1% on the electrical."

Mill No. 19: "We have two types of mechanical stop motions, the old type with the bottom comb and the later sliding-bar type. The comb-type motions take about 5% of the fixer's time to keep them in working order; and the sliding-bar type takes only about one-half that time, or 2½% of the fixer's time. Maintenance is very low on our electrical motions, probably less than 1% of the fixer's time."

QUESTION NO. 12: *Describe your method of overhauling looms, giving procedure, frequency, and extent of overhauling. Do you have any improved method of preventive maintenance?*

Mill No. 1 wrote: "We first pick out a group of looms that are in need of overhauling. Then, taking the various motions one at a time, the head overhauler lists the parts that will be needed; and we order them. With the necessary supplies on hand, the overhauling is started. The work is usually done in two alleys, and care is taken to have only one loom down on a weaver at a time. Every moving part of the loom is removed, and the frame is dismantled.

"All the parts are thoroughly cleaned in mineral spirits, and the loom slides are scrubbed down with a wire brush on a flexible electric shaft. We think that the parts can be better fitted if they are free of grease and dirt. Badly worn parts are junked, and those that can be repaired are sent to the shop. In most cases, new parts are cheaper than those that are re conditioned.

"On Draper looms, especially the older ones, the camshaft boxes work loose and in time wear down the bosses on the loom sides. When this is done, the camshaft boxes cannot be lined true. The same is true of the crankshaft boxes. We have the worn places

COLOR

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The secret of quality azo dyes

In azo dyes, a sure way to develop the finest colors is to specify U.S.P. *quality* SOLVAY Sodium Nitrite.

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Specify Quality—Specify SOLVAY

...but TENNANT
DRY-CLEANING
makes the difference!

What a contrast! An old, oil-soaked floor made 533% brighter . . . safer than before . . . and given a smooth, hard surface that resists dirt penetration —*all because it's dry-cleaned the* TENNANT *way.*

Gives you BRIGHTER, SAFER FLOORS . . . AT LESS COST

Are there dark, slippery floors in your mill due to prolonged wet-scrubbing? Then check these advantages of the TENNANT System:

RECONDITIONS your floors. Fast, easy-to-use Tennant machine brings your floors to life again! Gets rid of dark, rough, oil-soaked fibers . . . leaves floor bright.

HARDENS surface to resist wear. Special sealing process fills, binds and hardens wood fibers. Makes your floor resist dirt penetration . . . prolongs floor life.

DRY CLEANS, eliminates scrubbing. A fast, one-man job . . . with no mess or bother. Keeps floor lustrous, DRY, non-slippery. Enthusiastically approved by hundreds of mills.

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TENNANT
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- Cleans floors, picks up soilage.
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Tennant Floor Machines have 12" or 16" revolving steel wool roll (or other accessory) that smoothly removes dirt and traffic stains. Very speedy and easy to use. Provides a smooth, dry, hard surface . . . saves man-hours.

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The way to finer floors
TENNANT
Floor Maintenance System
ESTABLISHED 1870

The Tennant System
ENDS SCRUBBING

Floors, like roads, are safer when DRY!

built up with a welding torch. Then they are worked down smooth and level.

"The looms are reassembled, with all parts in good condition. In some instances, we have painted the looms before starting them up again.

"We overhaul on approximately a ten-year plan. The only form of preventive maintenance we have in effect is the checking of the looms by the fixer and second hand when the ground warp runs out."

Mill No. 2: "At present, we have about four or five young men who have been taken off weaving; and we are teaching them to fix looms. The head loomfixer outlines the work for each learner and checks each job before it is turned over to the regular fixer on the section. This gives us the assurance that the looms are fixed right. Too, it gives our head fixer a chance to see just how the learners are progressing.

"We do not overhaul a loom completely unless it is in very bad condition; we only replace parts that are worn, tighten up all loose connections, and make needed adjustments.

"We have two motives for this: one is to put on new parts unless the old ones are completely worn beyond use, and the other is to train our fixer learners not to waste parts.

"The method we use in preventive maintenance is an old one, but it has always produced good results. We have our weavers on our ticking looms lay the shuttles on the cloth at the end of the week so that the shuttles can be inspected by the supervisors. Where a new shuttle is needed, we mark down the loom numbers and have our fixers put on a new shuttle the following week. We have our fixer turn in a work card on this loom, and the loom is checked by the supervisor. If it is found to be all right, the supervisor signs his name and the date. If the loom is not all right, he checks with the fixer to see why it was not set up correctly.

"Each week the foreman of the weaving department has the supervisors from all three shifts check a different part of the loom motion on all our looms. The looms that are not in good condition are marked down, and three copies are made. One copy is kept by the foreman, and the others are turned over to the supervisors and loomfixers. One is used as a guide for the loomfixer and the other for the supervisor to check the loomfixer.

"All this checking is done on Saturday morning when the looms are stopped."

Mill No. 5: "We try to overhaul one motion at a time (let-off, take-up, etc.). We do not have a regular sched-

Rayon Reports

AVC Textile Chemicals listed to show their many uses

The full list of textile sizes and finishes made to AVC specifications by the Atlas Powder Company and sold and serviced by American Viscose, emphasizes the broad scope of their usefulness. Their names and uses are as follows:

"AVCONIT" #3

1. Size and lubricant for rayon hosiery yarns from solvent solution.
2. Lubricant for voile twist type rayon and acetate filling yarns. Also for other constructions to improve throwing and weaving efficiency.
3. General size and lubricant where solvent method of application is desirable.

"AVCONIT" #4

1. Same as #3 but especially for acetate.
2. For operations where ease of scouring at lower temperatures is necessary.

"AVCONIT" WD

1. Size and lubricant for hosiery yarns for water emulsion.
2. General size and lubricant for emulsion application.

"AVCOSEW"

1. Lubricant for sewing thread of all types. Particularly effective for rayon, cotton and nylon. Applied in dyeing equipment or standing bath.
2. Anti-static agent and general lubricant for all yarns.

"AVCODISK"

1. Wax disc for applying lubrication during winding operations to tricot, knitting yarns, etc.

"AVCOLUBE" 100

1. Powerful softening, lubricating and anti-static emulsifiable wax.
2. Finish for stock dyed rayon and cotton staple, dyed knitting yarns for skein, package or beam methods.
3. Anti-static agent for acetate and nylon.
4. Promising applications in woolen-worsted trade.

TWEEN 20

1. Liquid lubricant and anti-static material for application to nylon by emulsion roll or wick for seaming and looping thread.
2. General lubricant for various yarns and fibers.

Book of Facts and Samples Tells Story of Avisco Crimped Staple

Samples of interesting yarns and cloths made with the newly introduced Avisco Crimped Staple are included in the pages of a special booklet released by American Viscose Corporation.

Striking feature of the new staple is the permanence of its crimp. Wetting and drying the fiber under tension removes the crimp. But when rewet, and dried out in a relaxed state, the crimp returns in full.

The fibers at left are regular rayon staple. At right, the new Avisco Crimped Staple that gives fabrics a crisper, loftier hand.

Hailed as a development of importance to the textile industry, the new fiber has already demonstrated its usefulness in soft nap fabrics—either in blends or by itself—to which it imparts highly desirable bulk and warmth without excessive weight. In higher twist fabrics like gabardine, it gives a notably lively, full hand.

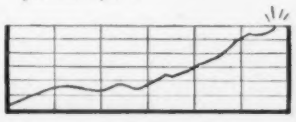
Avisco Crimped Staple, the booklet points out, is available in 1.5, 3.0 and 5.5 deniers, and in a useful range of lengths, both uniform and varied. The book also contains a section on the high running efficiencies of Avisco Crimped Staple based on tests on full size textile machinery at the AVC Textile Research Department and in mills.

Copies of the booklet are available on request to American Viscose Corporation, 350 Fifth Ave., New York 1, N.Y.

RAYON 20 YEARS AGO

ROANOKE, VA., Dec. 1927—The sixth unit of the plant of The Viscose Corp. of Va. is nearing completion.

NEW YORK, Dec. 1927—November production of rayon by American Viscose plants was at the rate of nearly 47 million pounds a year.



BOSTON, Nov. 1927—Knitters now take more than half of all the rayon produced.

MAKE USE OF *Avisco*® 4-PLY SERVICE

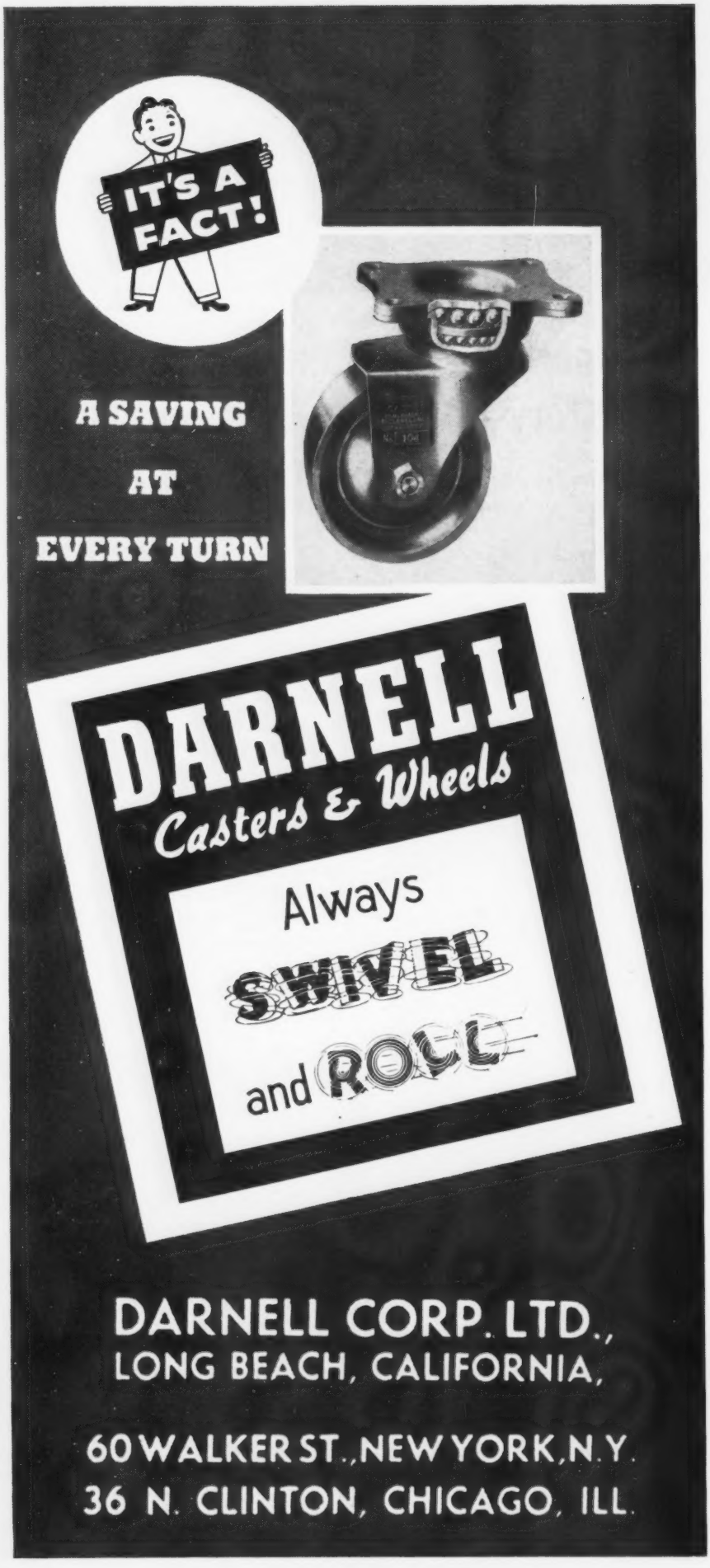
To encourage continued improvement in rayon fabrics, American Viscose Corporation conducts research and offers technical service in these fields:

1 FIBER RESEARCH
2 FABRIC DESIGN
3 FABRIC PRODUCTION
4 FABRIC FINISHING

AMERICAN VISCOSE CORPORATION

America's largest producer of rayon

Sales Offices: 350 Fifth Avenue, New York 1, N. Y.; Charlotte, N. C.; Cleveland, Ohio; Philadelphia, Pa.; Providence, R. I.



ule for overhauling. Second hands inspect looms for worn parts such as rocker bearings, end play in lay, worn crank arms, too much power, shuttle inspection, etc. We try to do this complete once each month."

Mill No. 6: "When we have a roll of seconds caused from mechanical defects, we put a tag in a holder on the loom showing the date and the yards of cloth. The trouble is corrected, and the loom started. When a second roll of seconds comes off this same loom, the date and yards are posted on a card. The trouble is corrected, and the loom started. This procedure is followed until the sixth roll of seconds has come off the loom. The loom is then torn down and completely overhauled. According to our records, this system will give two-thirds of the looms a complete overhaul each 12 mo."

Mill No. 25: "We have been experimenting with a new system of overhauling. We completely overhaul 18 looms in a room separate from the weave room. Eighteen looms are then removed from the weave room and replaced by the 18 overhauled looms. This is new with us, and we do not have a complete cost figure to prove or disprove the value of this overhauling program."

QUESTION NO. 13: *Do you condition filling? If so, by what method? What length of time is allowed for filling to set before it is used?*

Do you have the problem of filling drying out after conditioning? If so, how do you overcome it?

Do you recondition filling left in boxes and batteries over the week end?

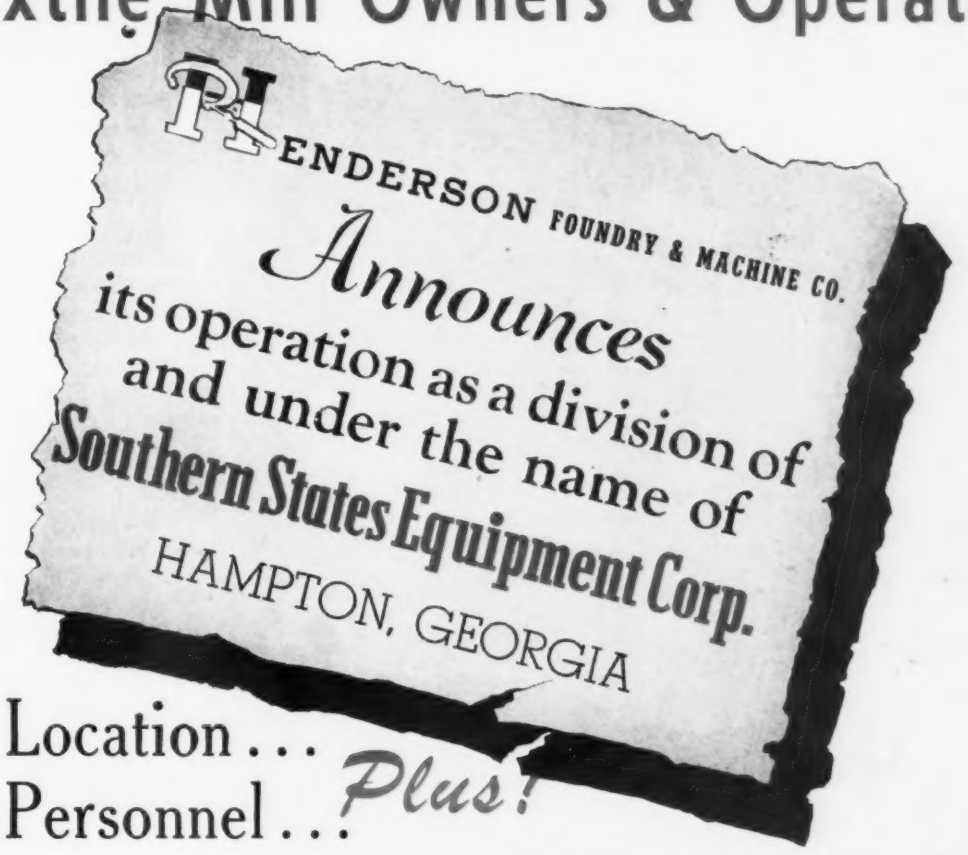
Mill No. 4 wrote: "Our filling is run through a conditioning machine with a wooden lattice conveyor exposing the filling to a spray for ½ min. The filling is allowed to set at least 2 hr. after being conditioned before it is placed in the loom. We condition our filling in accordance with our needs; or in other words, we have enough conditioned filling on hand to fill the needs of the looms 2 hr. in advance. We do not recondition filling that is left in the batteries over the week end. However, filling already conditioned and left over in the boxes during the week end is reconditioned."

Mill No. 8: "We run our filling through a conditioning machine, and then place it in a hot house at 90 to 95° temperature for at least 2 hr. We have had to condition some of our filling over after it had been conditioned for several days. We do not recondition filling that has stood over the week end."

Mill No. 13: "We condition our

Significant NEWS...

For Textile Mill Owners & Operators



Same Location... Same Personnel... *Plus!*

HERE is an announcement of utmost interest to textile mill owners and operators throughout the nation. Henderson Foundry and Machine Company, one of the largest manufacturers of textile machine parts in the South, will henceforth be operated under the name of Southern States Equipment Corporation.

There will be no change in our personnel. There will be no change in our location. There will be no change in the quality and careful workmanship you have always associated with Henderson products.

There will be this change. In addition to the "Know-how" of textile engineers, we can now offer you the ability and "Know-how" of field-trained electro-mechanical engineers. In addition to providing you with textile machine parts manufactured to stock patterns, we are now able to offer solutions to your problems of electro-mechanical design **and** construction!

Significant, indeed, to textile mills is the combining of the Henderson name, its plant and facilities, with those of one of the major manufacturers of electrical transmission and distribution equipment. Significant because of the increased service it now enables us to render.

Call on us TODAY. Our engineers **solicit** your problems of a textile, mechanical, or electrical nature.

HENDERSON FOUNDRY & MACHINE CO.

(A Division of Southern States Equipment Corporation)

HAMPTON, GEORGIA

Largest Manufacturer of Cast-Tooth and Cut-Tooth Gears in the South

Back of every great development in Textiles stands the Bobbin.

Fashion dictates a "new look" — calling for extra yardages of rayon, silk and Nylon; calling for higher production in the throwing of these yarns.

To meet this problem of greater speeds and finer qualities, Cloverleaf-Freeland engineers are always at work designing new Bobbins and developing new constructions — supplying Bobbins that are tested and proved under actual operating conditions.

This is just one example of the service at Cloverleaf-Freeland — service that builds great Bobbins.

CLOVERLEAF-FREELAND CORP.
Hazleton, Pa. Honesdale, Pa.

New England Representative:
R. F. Makepeace, 9 Rhode Island Ave., Warwick Neck, R. I.

CLOVERLEAF-Freeland BOBBINS

high-twist 14s and 15s filling by passing it through sprays of 1% solution of suitable penetrant. This filling is allowed 3 to 4 hr. to set. We hold strictly to schedule in conditioning and seldom have conditioned filling to be subjected to drying. Sometimes filling in boxes is reconditioned on Monday morning but not the filling in batteries."

QUESTION NO. 14: *Have you had trouble with a few ends rolling at the selvage on the loom? If so, what can be done to eliminate it?*

Mill No. 2 wrote: "The temple should be set at an angle, where it will be about ¼ in. off the race plate when the loom is on front center, and should be set about the same distance from the edge of the cloth to prevent crowding.

"The warp should be drawn in the center of the reed, and the reed proportioned on the lay where it will pull evenly on each end and will not run over the end of the sand roll, which will cause it to roll against the frame of the loom.

"A misdraw in the selvage can cause it to roll. This should be checked on each new warp put into the loom."

Mill No. 4: "On the last twelve ends in the selvage, we lay one end less per dent in the comb than in the body. We also separate each end by a drop wire to assure an even lay on the loom beam."

Mill No. 11: "We find that most rolled selvages are caused by a wrong harness or reed draw of the warp ends. However, this condition may be caused by using the wrong-type temple or too much tension on the filling yarn, either from the shuttle bristles or tension in the shuttle eye. Too much power on the picking motion or a slack warp will also cause this condition."

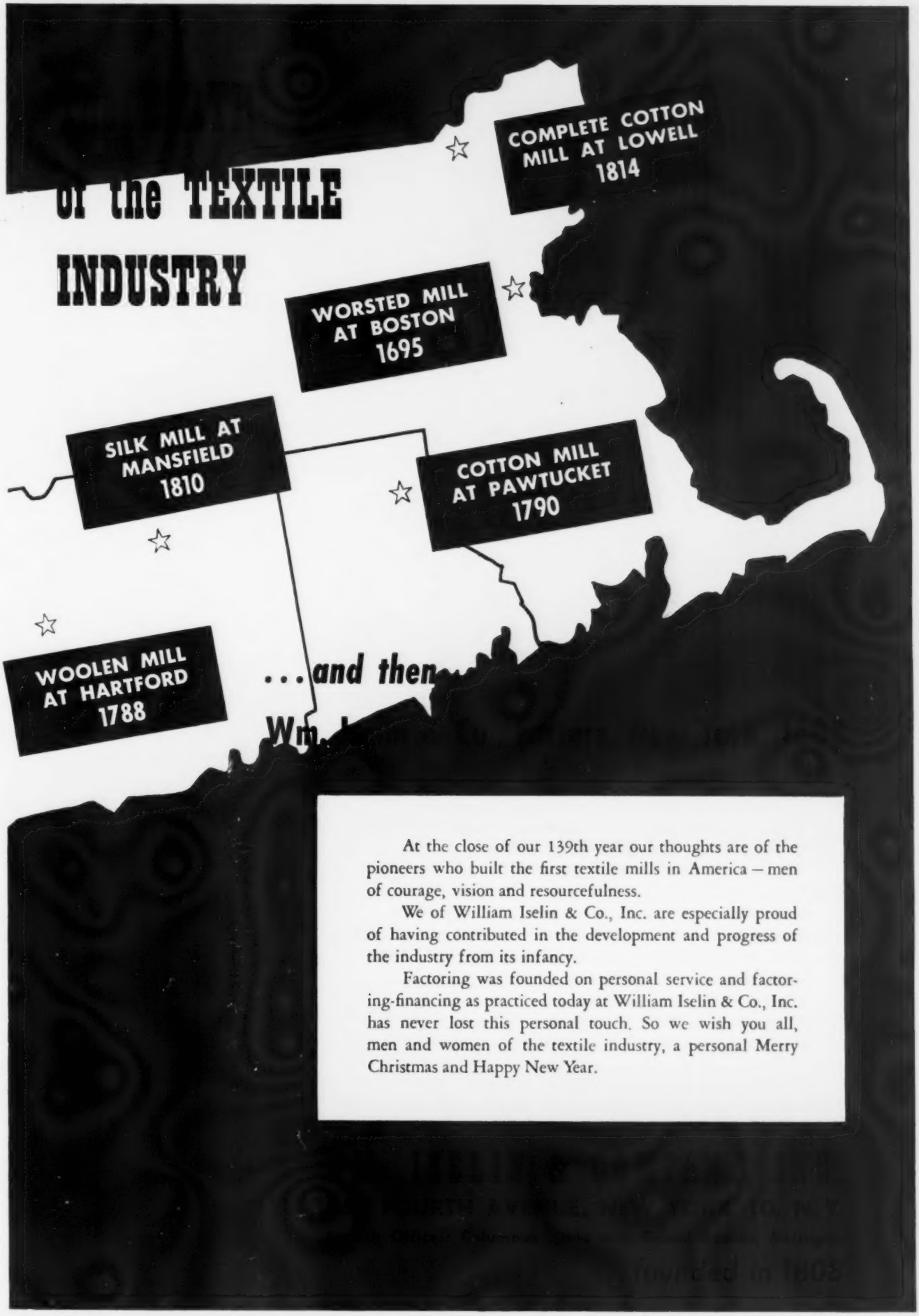
Mill No. 12: "We have had no particular trouble with selvage ends rolling on looms. However, to correct this trouble we recommend:

1. If using a portable tie-in machine, comb and tie the selvage separately from the body of the warp.

2. Set temples in such a manner that burrs do not make more than one-quarter revolution. This prevents slackness at the selvage."

Mill No. 17: "Rolled ends can be caused at the slasher or beamers by not properly using the comb, bad beam heads, and improper brushing out at tying in on both full loom beam and pattern to be retied. A very close check and follow up is necessary to determine where this bad work is being made."

QUESTION NO. 15: *What steps can be taken to eliminate jerked-in filling*



At the close of our 139th year our thoughts are of the pioneers who built the first textile mills in America – men of courage, vision and resourcefulness.

We of William Iselin & Co., Inc. are especially proud of having contributed in the development and progress of the industry from its infancy.

Factoring was founded on personal service and factoring-financing as practiced today at William Iselin & Co., Inc. has never lost this personal touch. So we wish you all, men and women of the textile industry, a personal Merry Christmas and Happy New Year.

*SALES APPEAL

LEIGHTON-KNIT

beautifies the texture—smooths the feel . . .

You get this soft fabric with the Automatic Brushing Attachment on Leighton Knitting Machines because the face of the fabric is on the outside facing the operator . . . The Leighton principle eliminates sharp bends making it possible to knit *soft spun yarns* with *less end breakage*.

Custom built to rigid specifications for sweaters and other fabrics from infant to adult sizes.

LEIGHTON MACHINE COMPANY
ESTABLISHED—1873

LEIGHTON

MANCHESTER NEW HAMPSHIRE
INCORPORATED—1894

on a C & K W-3 drop-box loom, running four boxes? On Draper looms?

Mill No. 2 wrote: "Some steps to prevent jerked in filling on C & K, four-box, dobby, terry loom are:

1. Have the pick motion set and timed properly.
2. Keep a good groove and bristle in the shuttle.
3. Have the meter cam set correctly to check the shuttle in the box end and to prevent having the binder too tight.
4. Wrap the mouthpiece with flannel or slasher cloth to hold the filling while shuttles are not running.

"On Draper looms, always put a screw in back of the picker to prevent jerked-in filling."

Mill No. 4: "On Draper looms, we have a systematic check by loomfixers at the beginning of the shift to see that the thread cutters are working properly and that the temples are set properly and temple knives are working. We also check the shuttle and see that it is being boxed properly.

"We have found that we can help jerked-in filling by drilling a hole just to the right of the opening for the Stafford thread cutter on front box and packing it with waste so that the waste extends a quarter of an inch on the inside. This will hold the filling in place for the thread cutter to pick it up."

Mill No. 5: "Keep shuttles properly boxed, screws imbedded in pickers (on back of picker) with no rough edges, leather on box fronts in good shape, and good leather bumpers. Be sure that the picker is parallel. Keep all splinters dressed off the picker stick from the check strap up to the picker. Keep a good groove in the front wall of the shuttle. If thread cutters are used, keep the thread holder working well and the thread cutter on the temple cutting on the third pick."

Mill No. 7: "On Draper looms, check shuttle feelers daily to see that they hold and cut properly. Check for burrs on pickers, box fronts, and backs. Check filling forks to see that filling is not hanging. Have weavers watch the cloth very closely for jerkins."

Mill No. 11: "To eliminate jerked-in filling requires good shuttle boxing, with enough tension on the filling yarn to hold it up and in the shuttle groove. The feeler knives should be sharp, and there should be enough tension to hold the yarn after it has been cut. The leather covering on the front box plate should be in good condition.

"The filling motion out of time or the picking motion picking late will cause jerked-in filling."

Mill No. 15: "1. Keep good pickers

Presenting The All-Star

SULPHONATIONS REVUE

highlighting that great performer "MONOPOLE"

● Forty-five years experience in producing Sulphonations—that's in back of every one of these star-performers! The oldest producer in the business, Jacques Wolf & Co., takes a special pride in maintaining the strictest laboratory and production controls. That's the reason a Wolf product is always known for its uniform high quality. uniformly successful results.

As the accompanying list shows, we supply all standard sulphonated oils and tallows, and a variety of special products as well. Still heading the list is our famous Monopole Oil, known throughout the industry for its tested results in dyeing and finishing. Introduced over 45 years ago—and like every Wolf product, constantly improved — this great double-sulphonated oil is still leader in its field!

Wolf offers you Sulphonations *as you want them*—in variety, value and performance.

LOOK AT THIS CAST!

Monopole Oil	Sulphonated Esters
Monopole Oil M.D.D.	Sulphonated Neatsfoot Oil
Monopole Brilliant Oil	Sulphonated Oleic Acid
Sulphonated Amides	Sulphonated Olevene
Sulphonated Castor Oil	Sulphonated Red Oil
Sulphonated Cocoanut Oil	Sulphonated Tallow
Sulphonated Corn Oil	Emulsified Mineral Oil

Soluble Pine Oil

And combinations with all types of solvents

WOLF BRAND PRODUCTS

JACQUES WOLF & CO.

Chemicals PASSAIC, N. J.

OTHER PLANTS: CARLSTADT, N. J. • LOS ANGELES, CALIF.

WAREHOUSES: Providence, R. I., Philadelphia, Pa., Utica, N. Y., Chicago, Ill., Greenville, S. C., Chattanooga, Knoxville, Tenn.

Shortcut TO ACHIEVING NATIONAL BRAND RECOGNITION

Not every organization finds it practical or feasible to build brand recognition through national consumer advertising. In most cases the cost of such a program is prohibitive.

But that doesn't mean that such organizations should drop all ideas of developing brand acceptance for their products.

One way to achieve such recognition is through the Certified Quality Program of the United States Testing Company, Inc. Reputable products are put through their paces in a series of scientific tests at our laboratories. If found acceptable, these products are Certified . . . are awarded the Seal of Quality . . . and are constantly check-tested as an added guarantee. They become part of a group of nationally known products of Certified quality.

The Seal of Quality . . . recognized as a buying guide by women's clubs, consumer groups, and shoppers everywhere . . . adds prestige to your brand, lifts it into that "golden circle" of consumer accepted trademarks.

May we discuss this with you further?

ESTABLISHED 1880

UNITED STATES TESTING COMPANY, INC.

HOBOKEN NEW JERSEY

PHILADELPHIA, PA. • BOSTON, MASS. • WOONSOCKET, R. I. • CHICAGO, ILL. • NEW YORK, N. Y. • LOS ANGELES, CAL.

Member of American Council of Commercial Laboratories

and picker sticks on the loom.

2. Keep a good groove in the shuttle.
3. Make sure that the shuttle feeler is cutting and holding the filling until it is cut by the temple knife.
4. Box the shuttle properly.
5. Keep the lay smooth.
6. Set the pick cam properly.
7. Use good box-front and box-back leather.
8. Keep bolts in lay-plate end tight.
9. Avoid too much power on the loom."

QUESTION NO. 16: *What method, or methods, do you use as a penalty or discipline for making bad cloth?*

Where cloth from several looms is placed in one roll for inspection, what is the best method for showing up defects to weavers and loomfixers?

Which is the best method of inspecting gray cloth:

a. To have the supervisor or inspector patrol the weaver's alley to find defects on looms, or

b. To inspect cloth at the inspecting machine?

Mill No. 3 wrote: "On our styled goods, fancy patterns, yarn, and colors it was necessary to set up a system for causes of seconds as well as for determining which weaver is producing excessive quantities of seconds. We have an inspection of the roll from the loom in the unfinished state as soon as possible after the cloth has been woven. This inspection will enable the supervisor to show the weaver the defective work; and in many cases, corrective measures can be taken to eliminate the trouble.

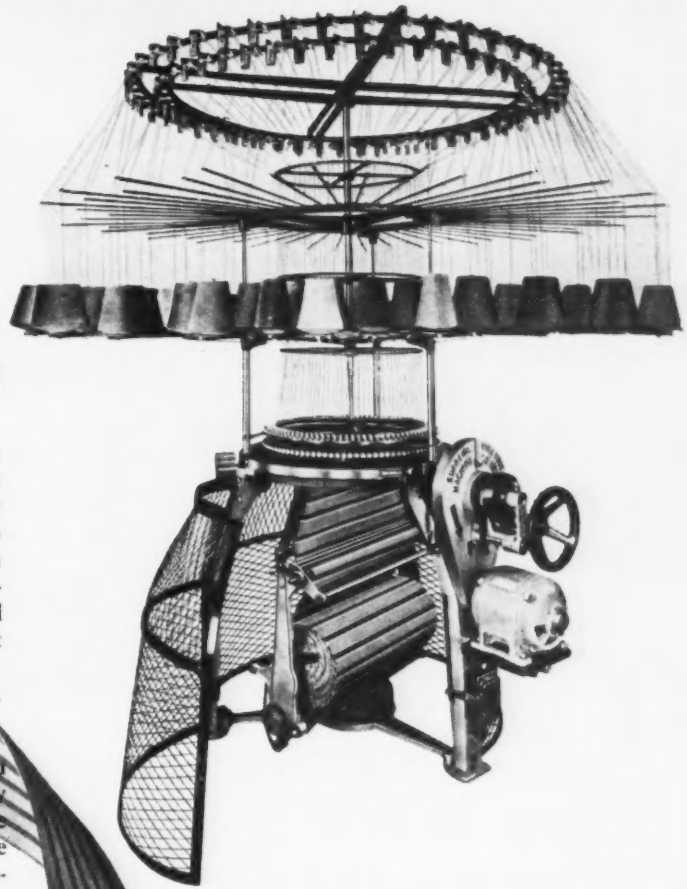
"Inspection tables have satisfactory lighting and run at slow speed, and the cloth passes over the top and down in front of the operator, which gives a direct view. All defects are counted and shown on a Weaving Inspection Re-

Loom Overhauler's Check List

1. Check race plate, line loom
2. Check pickers and binders
3. Check parallel blocks and feet
4. Check protecting rods
5. Check pick cams and pick levers
6. Check let-off and take-up
7. Check sand roll
8. Check head gears and friction
9. Check frog rubbers
10. Check rocker shaft and bearings
11. Check all bearings on camshaft and crankshaft
12. Oil loom and run it to see that it is not binding anywhere
13. Tighten pitman arms
14. Set stroke and boxing of shuttle
15. Check battery and transferrer
16. Check and set midget feeler

SUPREME'S NEW 96 FEED MACHINE

A HIGH Production Knitter of WIDE Stripe Jersey



Produces 3½" Wide Stripes at 125 Yards Per Hour

Now you can knit those wide, bold stripes that shrewd store buyers demand. 96 Uniform feeds on the 26" diameter Supreme Model MJ Wide Stripe Circular knitting machine gives you the ability to sell this discriminating market wider jersey stripes and yet increase your mill poundage. If you produce unusual piece goods for the polo shirt and ladies blouse trade, you cannot afford to be without this new 96 feeder.

Here are some of the features of this high production, high precision unit.

MICROMATIC STITCH CONTROL—The stitch from each of the 96 feeds is kept precisely uniform by individual Micromatic control for each cam. The operator adjusts the stitch by merely turning the indicator dial on each section by hand. No guesswork or tools are required.

VERSATILE—Will knit cotton yarns from 8/1 to 36/1 or their equivalents in wool, rayon and silk.

INTERWINDING "FLOATING TAKE-UP"—Achieves perfectly uniform tension between the take-up and knitting elements at all times.

ROLLER BEARING SUPPORTED CLOTH ROLL-UP—Entirely independent of floating take-up.

STATIONARY VIBRATION-FREE YARN STAND—Only the cylinder and takeup revolve.

INTERLOCKING CAM RACEWAY—of specially hardened steel cams.

INSERTED WALL CYLINDER

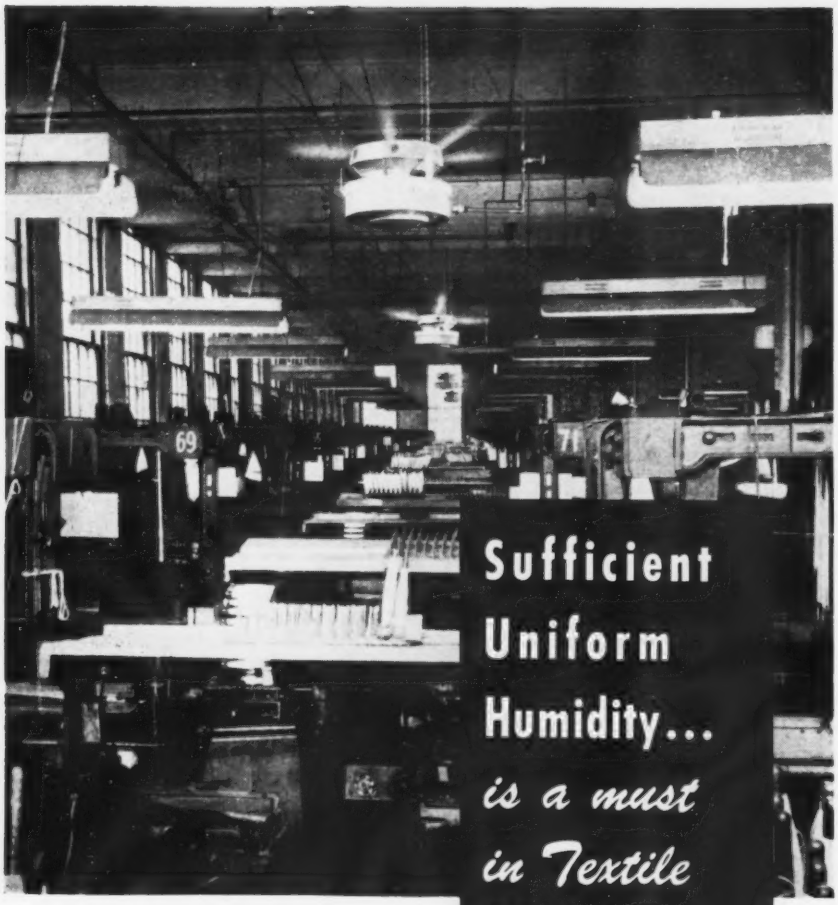
PATENTED MULTI-DISC CLUTCH

AUTOMATIC IDLING HAND WHEELS

Write for further information or, better still, come to Supreme and see this efficient producer in operation.

SK-104

SUPREME
KNITTING MACHINE CO., INC.
105 Johnson Ave., Brooklyn 6, New York, N. Y.



Walton

HUMIDIFIERS RAISE QUALITY REDUCE SECONDS . . . INCREASE LOOM EFFICIENCY AND MILL OUTPUT! . . .

This typical weaving room obtains the required uniform humidity from a dependable Walton System . . . one of many installations throughout the textile industry, where they have been found to be a "must"!

Walton equipment introduces humidity to air at rated capacity, as soon as the units are started . . . and operate uniformly thereafter! This uniform humidity raises the quality of the product, boosts loom efficiency and mill output. There are so many advantages to Walton we invite you to write us today for full details on Walton Equipment and how it is serving the textile industry.

WALTON LABORATORIES, INC.
IRVINGTON 11, NEW JERSEY

WALTON LABORATORIES, Inc. Irvington 11, N.J.
Please mail me copy of "HUMIDITY"

NAME_____

COMPANY_____

ADDRESS_____

Please refer to TW 12-7

port for each roll inspected. A space is provided for each weaver's name represented in that roll. From this report, a record is kept in the weave-room office on each weaver. All his work is recorded on a Weekly Record of Weaving Defects form. This form shows in detail the defects found in each weaver's work for the entire week, together with any premium earned or amount docked.

"In order to get a better picture of each weaver's progress, a Quarterly Record of Weaving Defects is used. This quarterly record shows the same details as the weekly record and has the advantage of having a continuous record of the weaver's work for observation. This record is consolidated as to results of the individual weavers, thereby providing a record by which supervisors can have a comparative picture before them at all times.

"In connection with this plan to pay a premium for good work and to dock the weaver for poor work, tables have been prepared to give the normal allowance of seconds at any given percentage. Tables have also been prepared to give the premium or dockage values for any given number of pieces below or above the normal allowance. These tables are based on the weaver's base pay."

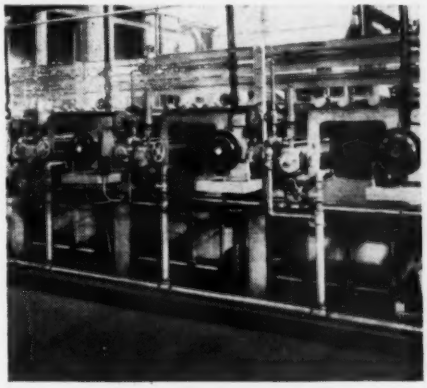
Mill No. 4: "We run cloth from the loom roll through a brusher and shearing machine into a large roll. The large roll is then put on the inspecting machine and burled, and all defects are tagged with a blue string. The roll is then put through the folder; and after folding, it is graded. Cloth that is not up to standard or that is a second, is sent back to the weave room to be shown to the weaver and loom-fixer.

"We pay weavers by the pick, having one scale for first-grade cloth and another for seconds. We stamp the shift number on the cloth at the beginning of each shift and keep a record of seconds made by each weaver and each fixer. The loom-fixer inspects the cloth on the looms on his job at the beginning or during the shift, signs his name on the cloth, and puts down the loom number and date.

"The weaver inspects the cloth on her looms all during the day; and one time during the shift, she signs her initials on the cloth and puts down the loom number."

Mill No. 6: "We know the cost of weaving a roll of cloth of any given length; and if a roll is a second, we pay 50% of this cost. In other words, if it costs $1.00 to weave a roll of cloth and it is a second, we pay only 50¢ for this roll. If at the end of the week an employee has been "docked" enough to bring his pay below that of

HOW THESE OPERATIONS CAN SOLVE THESE PROBLEMS FOR YOU



SOAPING VAT COLORS

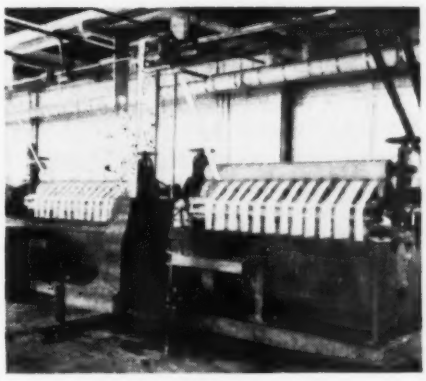
1. **Removing excess and lightly attached dye-stuff.**
2. **Getting clear, bright colors that will not rub off.**

Mere soaping alone isn't the answer to these two problems. It takes a *good soaping* with Armour's FLINT CHIPS to remove excess dye-stuff, clear the whites, brighten the colors. Since maximum soaping results are attained at about 180°-190° F., high titer FLINT is ideal. Besides, you get a thorough boil with FLINT, because it stays active even under steam. Results—sparkling, clean cottons!

FULLING, SCOURING REWORKED WOOL

1. **Fulling and cleaning the wool in a minimum amount of time.**
2. **Obtaining a clean, clear-looking piece of fulled cloth.**

For really successful fulling and scouring it takes Armour's TEXSCOUR Soap. TEXSCOUR, a red oil base soap in flake form, affords superior wetting and penetrating properties. At the same time, it has enough *body* for the fulling job. Good scouring must be done at low temperatures to keep the wool from felting and shrinking. That's why 8-12° titer TEXSCOUR cleans up fibres, leaves wool soft and resilient.



DESIZING COTTON

1. **Freeing cotton goods from sizing, prior to dyeing.**
2. **Avoiding spotty dyeing and uneven shades to secure a uniform finish.**

In desizing cotton, you need high wetting and penetrating properties rather than high detergency—a synthetic rather than a soap. The best solution to your problems is Armour's REGAL Synthetic Detergent. REGAL is a modern all-purpose synthetic that is readily soluble in cold or hot, soft or hard water. It rinses quickly and freely without insoluble deposit. Because of its swift penetration rate, REGAL reduces the time required for desizing operations, yet finished goods are free from sizing and permit level, uniform dyeing.

Remember, There are Armour Soaps and Synthetic Detergents to Solve All Your Textile Problems

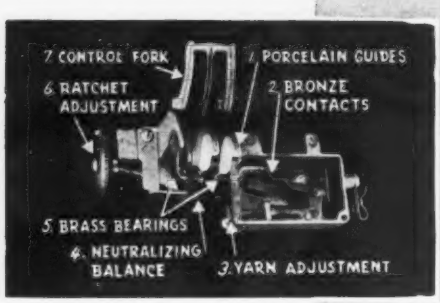
ARMOUR and Company

Industrial Soap Division

1355 WEST 31ST STREET • CHICAGO 9, ILLINOIS

CRAWFORD
ELECTRIC
STOPMOTION...

Designed For Your Specific Machine!



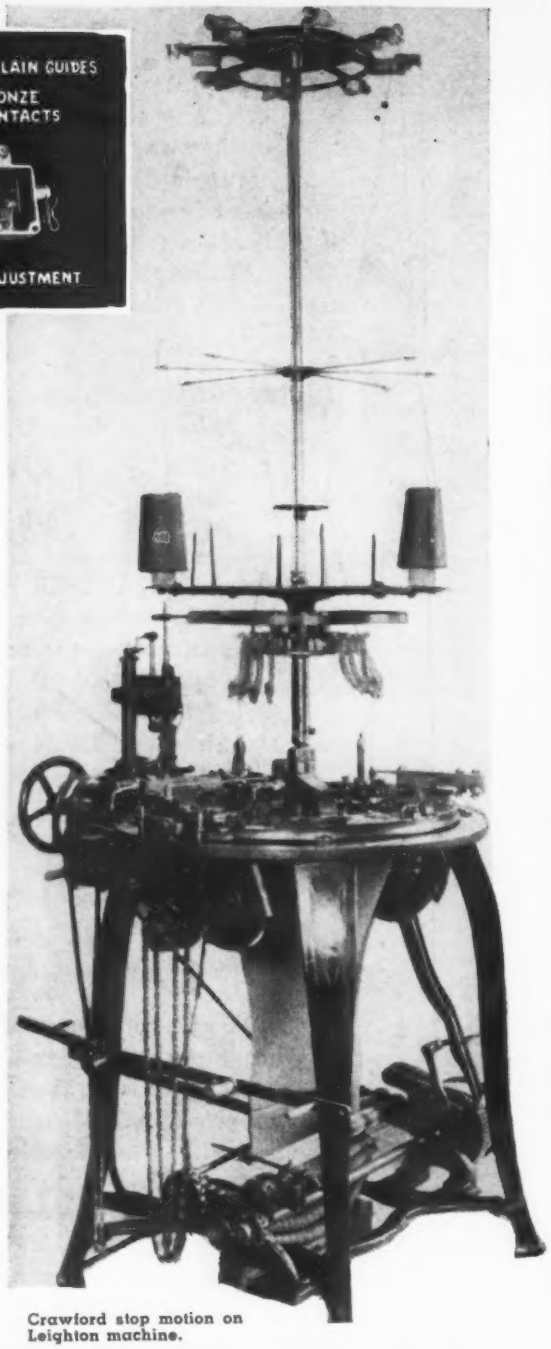
PROVIDES More Production

GREATER Uniformity

More production, greater uniformity—that's the performance record of Crawford's Electric Stopmotion, easily applied to any knitting machine you buy! These results are based on more than 50 years' experience in hundreds of knitting mills throughout the country.

Note Crawford features shown in above illustration:

1. Porcelain Guides, smooth, frictionless, long wearing.
2. Bronze Contacts, non-arcing, long lasting.
3. Yarn Adjustment for each specific weight of yarn.
4. Neutralizing Balance gives sure, even action and yarn control.
5. Brass Bearings insure long life and uniform, smooth action.
6. Ratchet Adjustment assures automatic action and protection for all yarn strengths.
7. Control Forks automatically protect your machine from damage due to uneven, faulty or broken yarn.



Crawford stop motion on Leighton machine.

The CRAWFORD MFG. CO., INC.

NEW BRUNSWICK, N. J. **Tel.: 2-0603**

MIDWEST REPRESENTATIVE
ALBERT R. BREEN
80 East Jackson Blvd.
CHICAGO, ILL.
Tel.: Harrison 7140

SOUTHERN REPRESENTATIVE
THE MORRIS SPEIZMAN CO., INC.
514 West Fifth St.
Charlotte, N. C.

PENNA. REPRESENTATIVE
JACK FORSTADT
623 Drexel Building
Philadelphia, Penna.
Tel.: BELL: Lombard 5663
Keystone: Main 3956

his guaranteed base rate, he is paid his guaranteed rate of pay.

"Our rolls are sent back to the weave room in their original roll. We have, in the weave room, inspectors patrolling the weaver's alleys; and cloth is inspected for final grading in the cloth room over an inspection table."

Mill No. 20: "A certain percentage of seconds is allowed without penalty. If seconds exceed that percentage, the weaver will be paid one-half the pick rate for all seconds made.

"Each roll of seconds is set out separately for showing up to weavers and fixers. If the first and second shifts have defects in the same roll, it is shown up on each shift.

"All cloth is inspected in the cloth room, although the weave-room supervisors make periodic checks by patrolling the weaver's alleys."

Full-Fashioned Lubrication

(*Continued from page 143*)

trained men to lubricate certain parts of the machines, others require that the knitter be responsible for all the lubricating on his particular machine. The former method is probably the more efficient, but the latter method has the advantages of giving the knitter more responsibility and of making him more familiar with his machine.

To obtain the proper lubricating job on a full-fashioned machine, three steps are necessary:

1. The proper lubricants must be selected.
2. Each knitter must be provided with the proper tools for lubricating his machine.
3. The machines must be checked regularly to insure that the oils and tools are being properly used.

Selecting the proper lubricants involves considerably more than reading the specifications of particular oils. Mills in different locations often need different oils for the same job. An engineer from a reliable oil company should be called in to determine exactly what viscosities of oils and greases are needed for the various fittings under the actual conditions of operation and geographical location. Once satisfactory lubricants have been obtained, the mill should be extremely cautious in changing to other lubricants.

OIL CUPS. Usually, each knitter needs three oil cups and two brushes shown in Fig. 1. The pressure oil can at the left, shown also in Fig. 2, has a long, flexible spout so that oil holes can be reached with ease. This can holds about 1 pt. of oil. The knitter should be cautioned against using an excess

FOR COLORFUL...LIVABLE...WORKABLE FABRICS

TURN TO Saran BY NATIONAL MONOFILAMENTS

Fabrics woven of SARAN monofilaments are creating the "new look" in the modern American home. Produced in a wealth of glorious colors, in diameters as fine as .005", these remarkable strands weave textures and patterns of unbelievable beauty for practical, livable upholstery fabrics. The unique characteristics of SARAN monofilaments endow these fabrics with a superior resistance to wear and rough treatment. They are unharmed by dirt, water and most chemicals.

The swing today is to SARAN! If upholstery or drapery fabrics have a place in your products, we would like to tell you more about the exciting selling story that SARAN is weaving for the textile industry.

SARAN BY NATIONAL denotes monofilament, rattan and tape manufactured by The National Plastic Products Company from Saran, a vinylidene chloride copolymer made by The Dow Chemical Company and supplied to mills, weavers and other fabricators for specific end uses.

TRADE MARK REG. U. S. PAT. OFF.

The NATIONAL Plastic Products Company

ODENTON • MARYLAND

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NEW YORK: EMPIRE STATE BUILDING • LOS ANGELES: BANKERS BUILDING

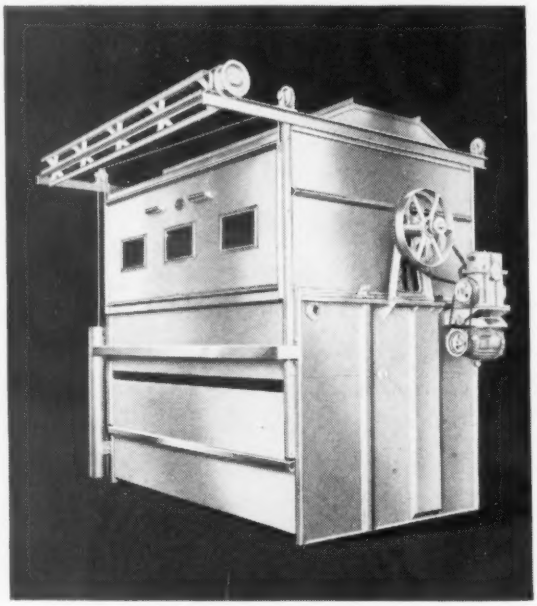
Hunter

1847 One Hundred Years 1947

5 ADVANTAGES

OF MODERN, HUNTER STAINLESS STEEL KETTLE

FOR PIECE DYEING & BLEACHING



The unique design and many refinements of the Hunter Stainless Steel Piece Dye Kettle make it the last word in modern, totally enclosed dyeing and bleaching equipment. It is unusually flexible, easy and economical in operation and, because of its rugged construction, it will give years and years of service. It will pay you to study the five advantages listed below, if you are planning to replace or expand your present dye house unit.

1. Vibrationless construction: all driving and driven members supported in newly designed separate frames.

2. Three-speed drive for main reel for increased flexibility.

3. A size and type for any piece dyeing or bleaching requirements.

4. A tight top enclosure, which is windowed and lighted, saves up to 35% of steam for the dyeing cycle. Entire Kettle may be insulated if required.

5. Proved performance on fabrics ranging from mohair plushes, woolens, worsteds, unions and blankets to spun rayons, etc.

WRITE FOR FULL INFORMATION

JAMES HUNTER MACHINE COMPANY, NORTH ADAMS, MASS.

of oil. After the oil hole in a bearing housing has been filled, any more oil that is pumped into the hole will merely drop into the pan below or to the floor and must be cleaned up.

Two open-top quart cups are also needed by the knitter. One cup should be used for needle oil, and the other should contain whatever type of oil is used for cleaning excess sizing off the machine. A separate brush should be used with each of these lubricants. One brush, Fig. 1, should be used to apply the needle oil to the needles, picot points, and narrowing points. The other brush should be used to apply the cleaning oil to the sinkers and dividers to loosen the accumulated sizing.

A volume pump, Fig. 3, should also be available to the knitters. This pump container holds heavy oil for use on the handwheel-shaft bearings. One container of oil will service about ten machines.

Best results can be obtained from a lubrication schedule if a written schedule similar to the one in Fig. 4 is posted at points convenient to all the knitters. Such a schedule should list the machine part to be lubricated, the kind of lubricant to use, and the frequency at which the part is to be lubricated.

One of the most important factors in lubricating the machine is that the department head sees that the oiling schedule is carried out. Frequent checks are necessary to insure that the parts are not only oiled but are oiled properly and at the specified frequencies.

Power Factors

(Continued from page 151)

ing is expected to vary widely and shift from one load center to another. In such cases it is usually more economical and preferable to locate the capacitors at the low-voltage bus. Unless there is poor regulation or excessive heating in the transformer caused by high current, it usually makes little difference which side of the transformer is chosen. If the secondary voltage is 230 volts, the higher voltage installation is usually more economical.

The space available for accommodating the capacitor is sometimes a determining factor in selecting the location of the capacitor. It should be remembered that the greatest benefits from the capacitor occur when it is connected near the load. However, if the voltage at the plant bus and load centers is relatively high during full-load operating conditions due to the power system operating near the upper limit, and it is desirable to have

Cotton Yarns for Polo Shirts

PACKAGE DYED BY GLOBE

—are preferred by many knitters because they are permanently level in hue, even after long wear and frequent laundering.

Bring your yarn dyeing problems to us and we will help you solve them.

Globe DYE WORKS CO.

1865

We do package dyeing on tubes, skein and warp dyeing, warp mercerizing, and sizing.

1947

Yarns we process include cotton, rayon, nylon, worsted, blend and novelty yarns.

4500 WORTH ST. PHILADELPHIA 24, PA.

SAVE MANPOWER, SAVE TIME

with COFFING HOISTS

The HOIST-JACK Lifts, Pulls or S-t-r-e-t-c-h-e-s

The "MIGHTY-MIDGET" PULLER Lifts or Pulls a 500 lb. Load!

Save money with the right hoist for the right job, selected from the complete Coffing line that covers industry's needs on *all* hoist work.

Brand new is the Coffing Hoist-Jack. Use it as a hoist, as a jack or as a load binder. Operates with or without stand; has a capacity of 2000 lbs.; safety tested to 100% overload.

Equally versatile is the "Mighty-Midget" Puller; small in size but mighty in power for pulling or lifting —weighs only 6½ lbs., yet handles a 500 lb. load. Two way handle (with "safety-load" feature) serves as lever or high speed crank.

WRITE for Illustrated Bulletins on any Hoist shown here.

COFFING HOIST COMPANY
Danville, Illinois

Look to COFFING for the Hoist You Need

Coffing "Safety-Pull" Ratchet Lever Hoists meet industry's needs for easy operation, safety, rugged construction. Nine models to handle from ¾ ton to 15 tons.

The Coffing "QUIK-LIFT" Electric Hoist is equipped with heavy duty motor. Hook or trolley suspension. Pendant control so accurate that loads may be raised or lowered by fractions of an inch. Seventeen models—500 to 4,000 lbs. capacity.

SAFETY-PULL RATCHET LEVER-HOIST

QUIK-LIFT ELECTRIC HOIST

ROBISON

RAYON YARNS

We continue to offer a flexible service combining superior workmanship in the

- dyeing
- twisting
- throwing
- converting

of filament, spun rayon, and nylon yarns.

ROBISON PROCESSING COMPANY

Boston, Massachusetts • New York Sales: 450 Seventh Avenue

capacitors connected in order to take advantage of the lower power billing, then it is usually preferable to locate the capacitors at the high voltage side of the transformer to keep the voltage rise produced by the capacitor to a minimum. A study of the existing voltage rise produced by the capacitor is the proper procedure in determining the best location for it.

When considering the installation of capacitors, it is usually desirable to determine the voltage rise during light-load periods; and, if found to be higher than can be tolerated, consideration should be given to their connection directly to the motor terminals to be switched off and on with the motor and thus eliminate the high voltage during light-load periods. If for some reason the capacitor cannot be located or connected to avoid excessive light-load voltages, then suitable means for automatically switching the capacitor off during light-load periods should be considered.

Bigelow-Sanford Training

(*Continued from page* 105)

pervisors on all levels have an opportunity to get better acquainted with each other.

This may sound like an ambitious program, but it can pay big dividends in terms of better performance through increased skills, better morale, and a realization on the part of each foreman, regardless of level, that he is truly a member of management.

SCHOOL OF CRAFTSMANSHIP. One of the most important features of the Bigelow training program is the Bigelow Weavers' School of Craftsmanship. Founded in 1933, this school, except for the war years, has been operating ever since. Each class, numbering between 20 and 25 employees, is made up of young men between the ages of 19 and 28 years. Anyone meeting the age requirements and having completed four years of high school or its equivalent is eligible to apply for admission. The selection is based on a battery of aptitude tests, but care is taken to obtain a proper distribution of office workers, engineers, maintenance men, and production workers.

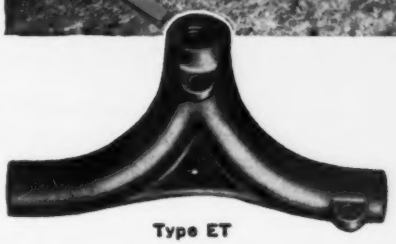
The purpose of the course is to develop young men for supervisory openings of the future. How well it has succeeded can be demonstrated by looking at the records and tracing the progress of men who have completed the course.

The program carries the trainees through every department in the plant. The company provides the

CROUSE-HINDS Large Radius Tees and Elbows . .

An electrical conduit installation using Crouse-Hinds Large Radius Type ET Tees in a mill before the concrete floor has been poured.

The same mill completed.



Type ET

Type ELB

Type EY

*CONDULET is a coined word registered in the U. S. Patent Office. It designates a product made only by the Crouse-Hinds Company.

. . . simplify electrical conduit installation in concrete floors

Where electrical conduit is concealed the use of Crouse-Hinds Cast-Feraloy Large Radius Tees and Elbows results in substantial savings in installation and in maintenance.

Saves Material. These *CONDULETS eliminate the necessity for flush floor boxes.

Easy To Wire. The wires can be brought directly up to junction CONDULETS or motor controllers, where it is easy to make the necessary taps and splices.

Maintenance Reduced. Taps and splices are out of reach of oil, water, or cleaning solutions that may be on the floor, completely eliminating future difficulties from this cause. If necessary, any portion of the sectionalized circuit between two tees can be readily replaced.

Crouse-Hinds Large Radius Tees and Elbows are equally useful for ceiling and sidewall outlets. These CONDULETS are made of cast Feraloy, which is inherently corrosion-resistant. The hubs have the CONDULET features of tapered threads and integral bushings, designed for easy fishing. Lugs are provided for anchoring to concrete forms.

These CONDULETS are listed on Page 14, Section 65, CONDULET Catalog 2500. The complete CONDULET line consists of thousands of items . . . . engineered to enable the electrician to do the job and do it right.

A Nationwide Distribution Through Electrical Wholesalers

CONDULETS
FLOODLIGHTS
TRAFFIC SIGNALS
AIRPORT LIGHTING

CROUSE-HINDS COMPANY
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Simply by setting the automatic control, any definite temperature and relative humidity are held uniform and constant by scientific instruments. Operator only needs to determine how long his particular yarn package should be in the "H-W" Conditioner to be perfectly set. The Conditioner then functions uniformly and accurately, load after load. Bulletin UC 1 gives full particulars.

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group with 2,000 to 2,500 lb. of unscoured wool, and the trainees process this wool themselves through every operation until they have made a finished product.

One evening each week is devoted to classroom work to supplement the practical plant work, which is done Saturday mornings. Evening sessions are conducted by a trained instructor who is often assisted by production supervisors. The practical instruction is under the direction of the superintendent of the department, assisted by his overseers and foreman.

When the first class was formed, there was no textbook which could be used, so a working manual was developed as the group progressed. Each year, revisions in the manual are made to keep abreast of changing methods.

Originally developed as a two-year course, the training period was later increased to three years; and very recently a fourth year has been added which will include supervisory development and business organization and management.

Graduates of this school provide a reservoir of trained men from which to choose whenever the need for new supervisors arises.

MANAGEMENT TRAINEES. The most recent addition to the Bigelow training program is a course for young college graduates who were carefully selected last spring from the leading universities in the East. The program, expected to consume about a year, will cover every department and every function in the organization. An orientation period of three weeks in the New York office opened fittingly in the office of the president who welcomed the group into the company and then proceeded to make a very inspiring presentation of information which required considerable thought and hours of planning.

The remainder of the next two weeks was spent in sessions conducted by all the division heads and department heads in the New York office who discussed the functions for which they are responsible. Almost 40 executives participated in this phase of the program. The third week was spent on the show floor, where the trainees became familiar with the company's products, its sales techniques, and methods of distribution. The entire program followed a detailed preplanned outline, and full remarks of all executives have been printed and distributed to the trainees. This volume will form an irreplaceable source of background information on all aspects of the company's operations.

The next phase of the program takes the trainees to one of the production

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COOPER can make immediate delivery from stock on Standard Type Stainless Steel Valves. These include: GLOBE · Y · NEEDLE · GATE · CHECK and QUICK-OPENING. The same prompt delivery can be given on Stainless Steel Pipe Fittings and Accessories.

COOPER'S 25 Years of Experience in Stainless Steel Casting has resulted in the development of vastly superior designs for Stainless Steel Valves. These designs incorporate many unique features that are exclusive with COOPER and insure long valve life and highly efficient performance in applications where Stainless Steel is indicated.

FIG. 100
150 lbs.
GATE VALVE
¼ in. to 14 in.

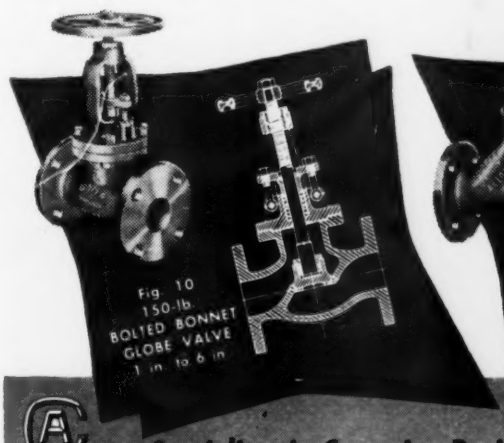

Fig. 10
150-lb.
BOLTED BONNET
GLOBE VALVE
1 in. to 6 in.

Fig. 225
150-lb.
Y-VALVE
1 in. to 6 in.

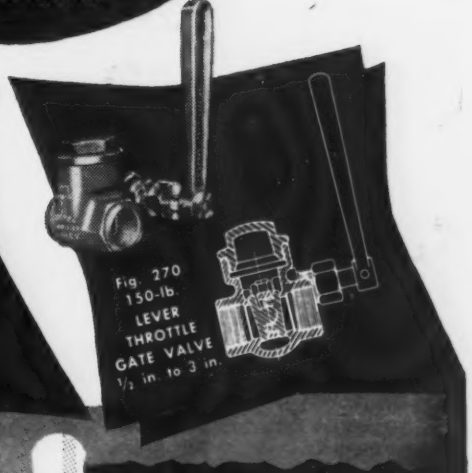

Fig. 270
150-lb.
LEVER
THROTTLE
GATE VALVE
½ in. to 3 in.

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HILLSIDE, NEW JERSEY

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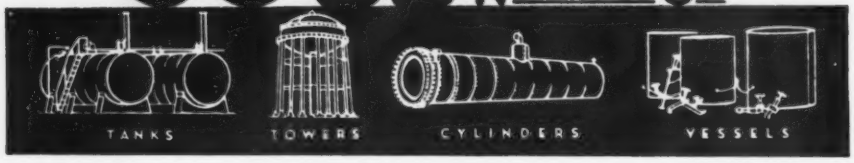

plants to spend several months going through every department. They are all required to wear working clothes and to do productive work in every department. As they proceed through the various departments, they are divided into small groups which are responsible for the development of flow and process charts. As the study of each department is completed, every individual is expected to submit a comprehensive report on the activities of the department.

At the conclusion of training in the first plant, two weeks will be spent visiting modern plants in other industries to survey other production and management methods. This period will be followed by three weeks spent in retail stores which sell Bigelow carpets for the purpose of doing market-research and sales analyses. The program will be concluded with a tour of the other Bigelow plants.

The final step will be to place the trainees on specific jobs. The selections will be based on previous training and education, adaptability for certain jobs, the desires of the trainees, and availability of jobs at the time that training is completed.

It is too early to evaluate the success of such a program, but if the enthusiasm of the trainees and the cooperation of all concerned are adequate criteria, this program is destined to become permanent. Succeeding groups will contain, in addition to graduates recruited from colleges, a number of promising young men already working for the company.

SPECIAL COURSES. It is the policy of the company to make available to employees special courses of training which will enable them to do their present jobs more effectively or prepare them for upgrading to better jobs. Recently, well over one hundred employees enrolled in a group accounting course paid for through payroll reductions, but with a guarantee of a full refund of the tuition for all successfully completing the course within a specified time.

Each year promising executives are selected for courses in business administration at Harvard University at the expense of the company. Selections are made on the basis of past performance and promise of future development. These and many other courses are attended each year by Bigelow men and women to meet specific needs.

Some training programs not mentioned here have been completed; others are contemplated in the near or distant future. But suffice it to conclude that it is an established practice of the company to make every

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Westinghouse Industrial Fluorescents, long preferred because of their efficiency and performance, now are improved to streamline appearance, make maintenance easier and give greater flexibility in application.

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A Complete Line—28 types, open or closed end, individual or continuous, interchangeable porcelain or baked enamel reflectors. Standard or no blink starters; or instant start ballasts.

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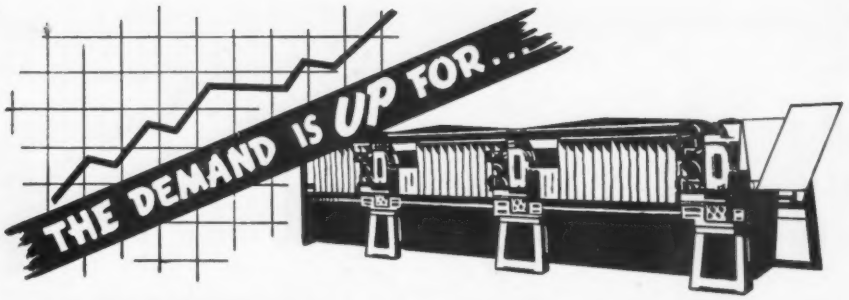

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attempt to meet training needs as they arise and to maintain a well-trained work force on all levels so that there will always be a pool of capable men and women prepared to step into better positions.

Labor Policy

(*Continued from page 153*)

EDUCATION NEED. Urgent need to acquaint the public with the importance of the textile industry and to gain greater "respect and admiration for the people who work in the mills" was stressed by G. Ellsworth Ruggins, president of Martel and Henrietta Mills, and chairman of the Textile Mills Industry-Wide Committee on Public Relations.

"Tens of thousands of contented, comfortable mill employees, and hundreds of thousands of consumers and customers should be willing to hear our story, willing to believe our record of achievement and creative service to our country, if someone will tell it to them. But, if we remain silent and indifferent, the technique of repeating endlessly a line of allegations, accusations, and recriminations over and over and over can eventually generate suspicion and hostility among our citizens and even among the people dependent on our skill and management for their continuing livelihood."

Fred A. Hartley, Jr., co-sponsor of the Taft-Hartley Act, spoke at the annual banquet on the problems posed in the working out of the law and on the possible introduction of amendments in Congress to clarify and aid the objectives of the law.

Brig. Gen. Herman Feldman, Assistant Quartermaster General of the Army & Navy Munitions Board, spoke on procurement policies and procedures; Gilbert A. Montague spoke on mergers; Chauncey Parker of the International Bank for Reconstruction & Development, spoke on the policies of the bank in relation to the foreign situation.

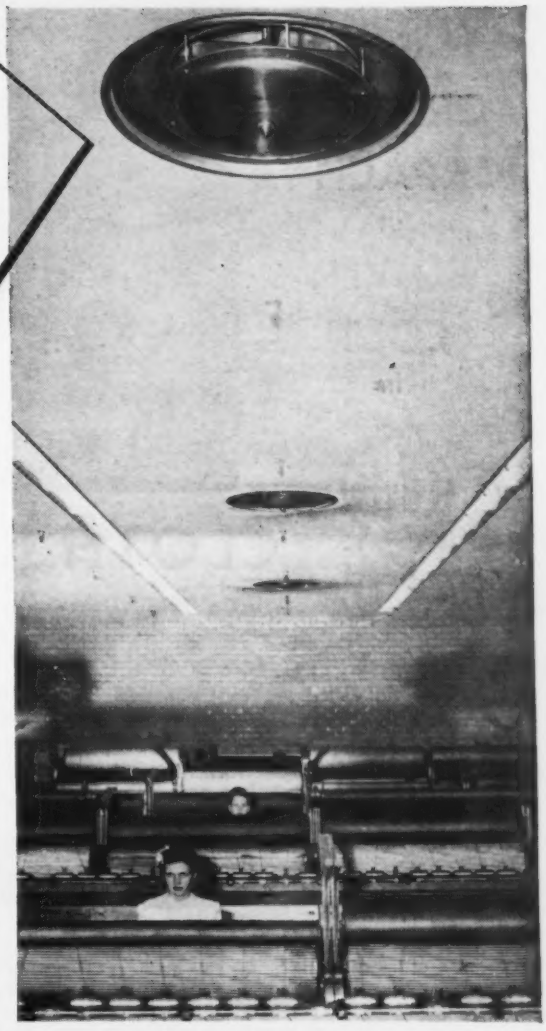
Metallizing

(*Continued from page 107*)

CLEANING. It is always essential that the objects to be metallized be quite clean. A cast-iron piece which has been running in oil may be expected to have a considerable amount of oil absorbed into the pores of the metal. This oil will prevent the creation of a satisfactory bond and neither rough threading nor grit blasting will remove it. Such parts should be subjected to high temperatures to drive off the oil from the pores.

For hardened surfaces which would

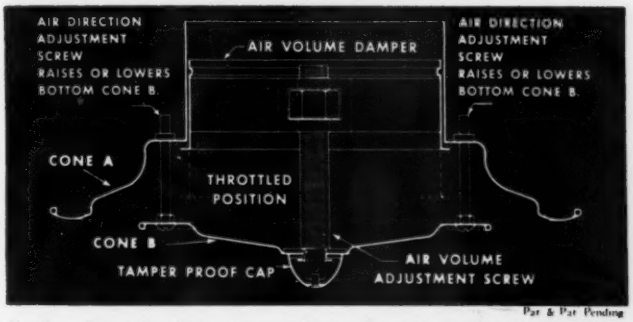
James Lees and Sons uses Adjustable Air Diffusers to increase plant efficiency



Kno-Draft Adjustable Diffusers offer the following advantages to textile engineers: (1) draftless diffusion at high velocity, (2) easy adjustability of each unit for control of air direction and volume and (3) easy cleaning due to simple construction. Installed on supply ducts centered between machines, they satisfy the cooling requirements of an area while maintaining even temperatures between machines. Or, located over spinning machines, for instance, the cooled air may be directed to "blanket" the source of heat generation. In both cases, no drafts occur and no threads are blown, because the air is directed and thoroughly diffused.

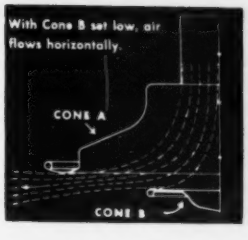
With the adjustment features, engineers can correct for unforeseen conditions which become apparent only after installation has been completed. Or they can make necessary adjustments to accommodate machinery relocation, partial shutdowns and other plant changes.

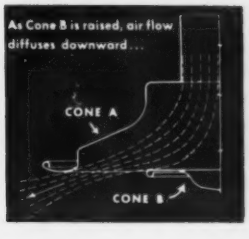
Adjustable air diffusion also cuts operating and installation costs. The use of much colder air, at higher velocities than grilles, louvres or slotted ducts can handle, means smaller quantities of air to condition, smaller ducts and simplified duct layouts.

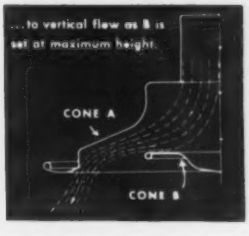

AIR DIRECTION ADJUSTMENT SCREW RAISES OR LOWERS BOTTOM CONE B.
AIR VOLUME DAMPER
AIR DIRECTION ADJUSTMENT SCREW RAISES OR LOWERS BOTTOM CONE B.
CONE A
THROTTLED POSITION
CONE B
TAMPER PROOF CAP
AIR VOLUME ADJUSTMENT SCREW
Pat & Pat Pending

Easily adjusted, sleeve type volume damper regulates outlet aperture uniformly. At constant static pressure, neither outlet velocity nor diffusion pattern is affected.

In the Glasgow, Va., plant of James Lees and Sons Company, scientific diffusion of light and air is utilized to increase production and improve employee health and morale. Both air direction and volume have been adjusted in each of the Kno-Draft Diffusers in the spinning room above to accommodate the ceiling height, heat generation and other requirements, such as machinery layout. Room and supply air are thoroughly mixed in an area well above the machinery and workers. Temperature and humidity are equalized throughout the room. Drafts, hot and cold spots are eliminated.







Any angle of air discharge—from vertical to horizontal—needed to accommodate ceiling heights and other plant requirements can be obtained by raising or lowering bottom cone B.

FREE HANDBOOK: Contains sketches, charts, dimension prints and instructive text that simplifies the selection and installation of air diffusers. For your copy, please write Textile Division, W. B. Connor Engineering Corp.

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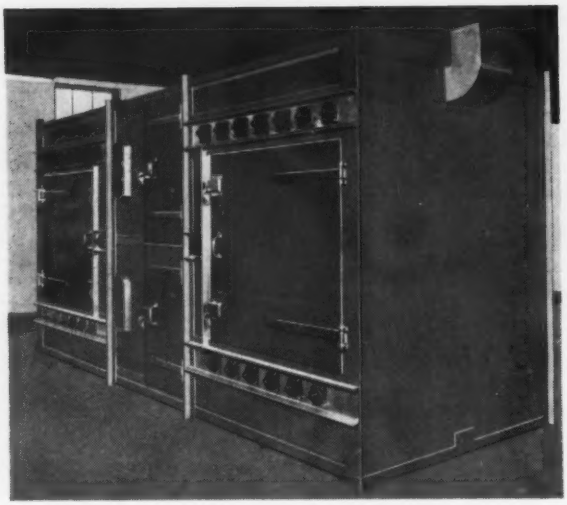

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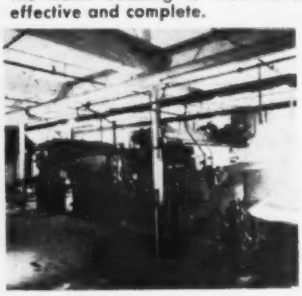
The Heat Line

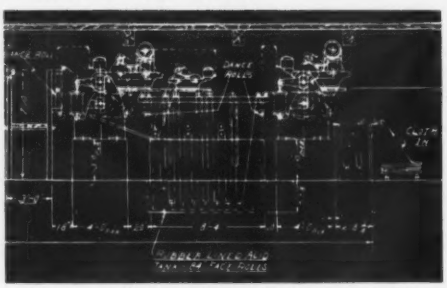
CARBONIZING RANGE

Women's wear woolens pass at 10-40 yards per minute from the wooden* wet out box through the rubber lined* steel acid tank, pin type tenter dryer, infra-red baker and continuous crusher mill (not shown), thence by truck to subsequent operations.

The skyframe, shown in the diagram, permits longer exposure to acid in a given floor space by increasing the vertical travel of the cloth. Even when the cloth is above the bath level, the excess acid runs down over it on its way back into the bath. Soaking is thus more effective and complete.



A New England Mill Installation



Here are other installation features of the Riggs and Lombard Carbonizing Range:

1. Heavy squeeze-roll extractor for maximum results regardless of speed.
2. Hydraulic, automatic, speed control insures constant even tension.
3. Variable speed drive.
4. Intermediate rubber squeeze rolls, rubber* immersion rolls and top idler rolls.
5. Thorough, even, uniform drying at temperatures below the boiling point.
6. In many installations a continuous neutralizer completes the range operation.

*These often are of polished stainless steel, with SMO used in acid tank. Circular on request

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FOOT OF SUFFOLK ST., LOWELL, MASS.

make the machining operations rather difficult, it is suggested that the parts be first annealed. If the spraying is done with Tufton chrome steel, 1.20 carbon steel, or a No. 2 stainless steel, then it will not be necessary to reharden; since these metals provide a hard surface in themselves.

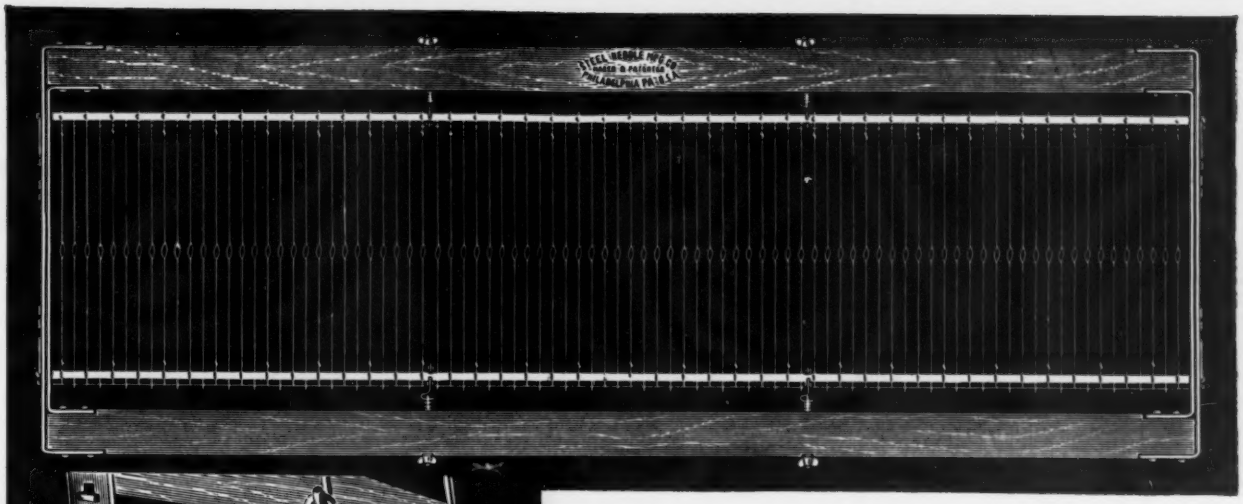
The metal spraying should follow as soon as possible after the surface preparation. This precaution is taken to eliminate the possibility of rust or oxidation of the surface; as well as to minimize the danger of contamination by oil, grease, or other foreign materials which will tend to reduce the effective bond strength of the sprayed metal.

The operation is fairly simple to follow. A continuous wire of the desired composition is fed at uniform speed into the rear of the metallizing gun. It is propelled forward toward the nozzle of the gun by means of compressed-air-actuated turbines. As soon as the wire emerges from the gun nozzle, it is melted by an oxy-gas flame. The molten metal is then atomized by compressed air and projected by a concentric air blast against the surface. When it contacts this surface, it cools instantly and adheres firmly to the prepared anchorage points. Since metallizing is a continuous process, the coating can be built up at any predetermined thickness.

The metallizing gun is a small, lightweight device consisting of a power unit and a combustion unit both mounted in a single assembly. The power unit consists of an aluminum housing which encloses a high-speed air turbine attached to a gear reduction which runs in a bath of fluid grease. Connected to the reduction gearing are small rolls which feed the wire during the spraying operation. The combustion unit is composed of the gas head, simultaneous-control valve, wire nozzle, and air cap. There is a turbine-regulating screw which controls the speed of the wire as it is conducted through the gun.

The most powerful unit in the heavy-duty metallizing gun is the balanced turbine which pulls the wire through the gun at a steady, uniform speed and also equalizes compressor fluctuations. One turn of the feed-roll yoke screw exerts a 15 lb. pressure on the wire. Nozzles for the gun are available to handle any metals in their wire form from 20 gage to $\frac{1}{8}$ in. in diameter. The air cap of the gun can be adjusted with finer atomization.

GASES USED. For melting the metal wire, various gases can be used admixed with the oxygen. Among these are: acetylene, propane, butane, coal gas, hydrogen, natural gas, or manufactured gases. With acetylene, the recommended pressure is from 7 to 15



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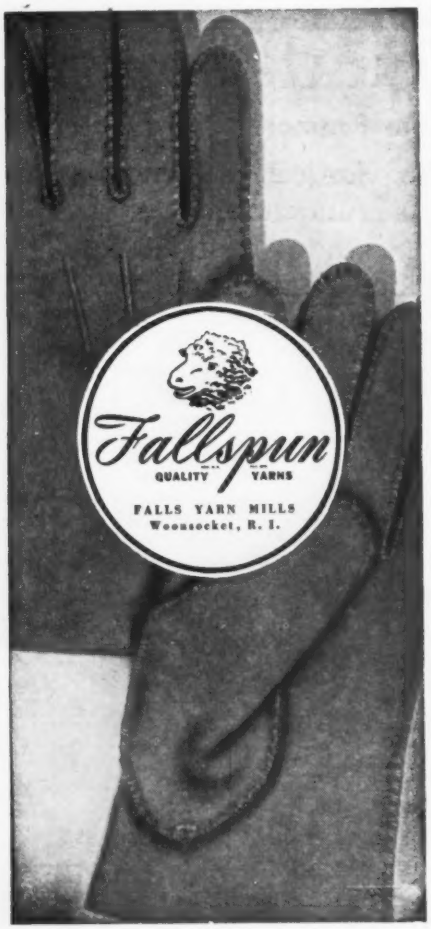

lb.; the consumption is 20 to 34 cu. ft. per hr. together with an oxygen consumption of 60 to 80 cu. ft. per hr. With manufactured gas, the consumption is 65 cu. ft. per hr. with an oxygen consumption of 80 to 90 cu. ft. per hr.

However, propane is the favored gas. The recommended pressure for this gas is from 10 to 15 lb. The consumption is 2 to 2½ lb. per hr. with an oxygen consumption of 60 to 80 cu. ft. per hr. The propane gas is usually delivered in 100-lb. bottles, and each one provides 30 to 50 hr. of spraying time.

The flame of the metallizing gun should be neutral. An oxidizing flame will result in the inclusion of oxides in the sprayed coating; these will cause an increase in porosity and a reduction of the bonding strength. On the other hand, the use of a reducing flame will result in a poor melt of the wire and inferior atomization, and these will lead to the production of an uneven coating.

The spraying process may be performed either by hand operation of the metallizing gun or by mounting the gun rigidly on a lathe bed and turning the work past the gun nozzle. Flat surfaces and parts too large for mounting in a lathe are coated by hand. The nozzle of the gun should be held from 6 to 8 in. from the surface being coated and should be kept in constant motion to prevent overheating of local areas.

The hot sprayed metal should never increase the temperature of the part above 200° F. The existence of higher temperatures indicates that the gun nozzle is being held too close to the work or that it is being moved too slowly. By trying to maintain temperatures below this maximum, the danger of warpage or loss of metal temper can be eliminated.

TEST PANELS. The spraying operator should experiment on test panels to ascertain the quality of the work he is performing. This will reduce the possibility of having to reblast and rethread parts which are covered by inferior coatings. The application of a desired coating thickness is a matter of experience. Test panels are built up with the coating, and the number of gun passes required are thereby determined. An ordinary micrometer can be used to check coating thicknesses on the test panels. On the sprayed work, the coating thickness can be checked with a calibrated electric thickness gage; and the light sections can be spotted quickly and brought up to the proper thickness to insure a uniform coating.

It is recommended that the thickness of the sprayed metal coating after finishing be at least $\frac{1}{32}$ in. When the part is worn less than this amount,

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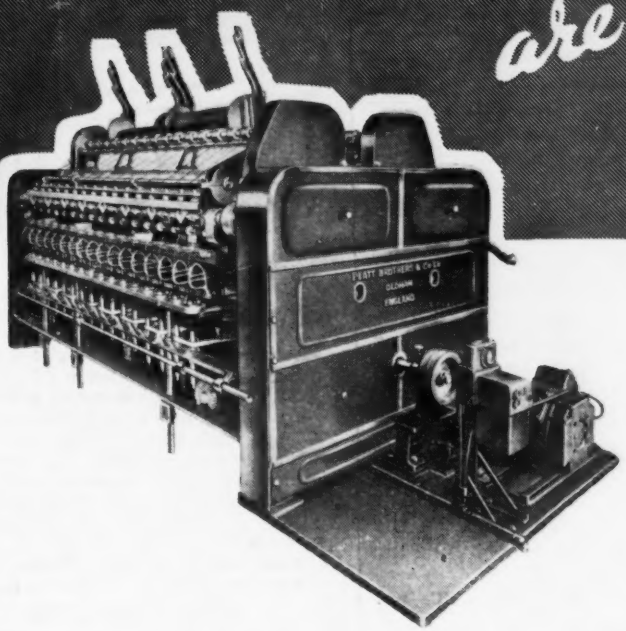

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The advantages accruing exemplify the new pattern Ring Frame.

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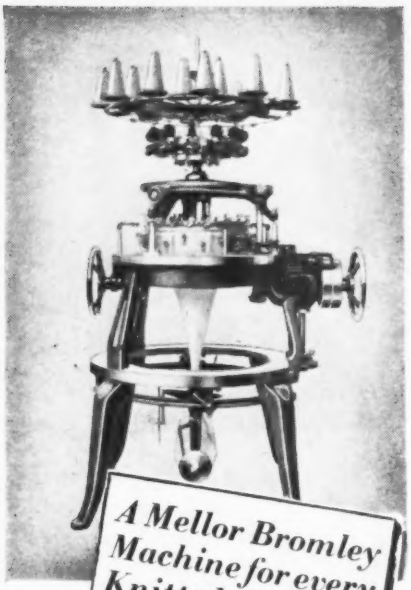

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it will be necessary to machine away enough base metal to permit this minimum application. When rough threading is used for the surface preparation, this minimum 3/32-in. coating should be maintained above the apex of the thread. All parts of the surface should be built up beyond finished tolerances; during the finishing operation, the metal will be removed to produce a smooth machined finish.

The last stage in the metallizing process is the finishing operation, and this will depend on the type of metal sprayed on. The softer metals and the low-carbon steels are finished in a lathe using ordinary cutting tools. High carbon and stainless steels must be finished by surface grinding. The usual sprayed metals can be machined without much trouble, but the high-carbon steel coatings are so hard that it is almost impossible to tool them; hence these are finished by a wet grinding operation. The cutting tools used for sprayed metal are very similar to tools used to machine cast iron. It will require some investigative work on the part of the machinist to determine the optimum tool settings.

For wear-resistant coatings, Tufton steel or 1.20 carbon steel are recommended. For those cases where severe corrosion conditions are encounterd, No. 1 stainless steel (18-8) is used; this must be polished after spraying. For general atmospheric and cold-water corrosion on steel, high-purity zinc is used. For the protection of metals exposed to elevated temperatures, the aluminizing process is used.

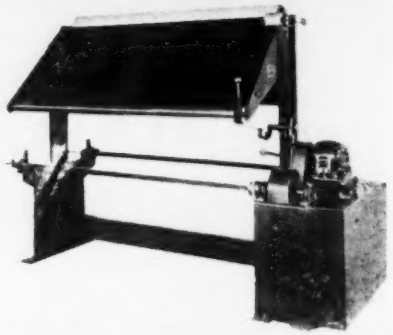
Quite often it is desirable to improve a cold-rolled shaft by spraying stainless steel; or a high-carbon steel may be sprayed on a lower carbon steel to give better wear resistance. Swedish iron is recommended for the salvaging of castings, since it has a similar surface appearance and is readily machinable. Where finish machining is desirable, as in the build-up of journals, bearing surfaces, and for press-fit work, a 0.10 to 0.25 carbon steel is selected. These are readily machinable and yield excellent wearing surfaces.

For pump rods, plungers, crank shafts, and for all surfaces which require a tough, wear-resistant coating and which are ground finished, it is recommended that Tufton chrome steel be used. All these are ground finished.

When working on flat surfaces, it is not recommended that more than 0.018 in. of aluminum nor more than 0.020 inches of lead, tin, zinc, or steel be used. If such a flat surface requires a heavier build-up than the figure specified, then additional anchorage must be furnished by some means as spot welding, drilling, or tapping.

(Continued on page 240)

NEW PROGRESSIVE INSPECTION FRAME



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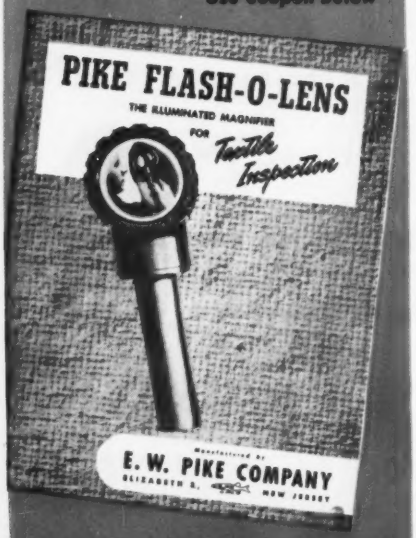

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(*Continued from page 238*)

COATING PROPERTIES. The wearing qualities of sprayed metal are related to its porosity, as the coating absorbs a certain amount of oil into itself. This provides the maximum lubricating properties both when the wearing surface is in motion and when starting with a static load. However, it must be noted that sprayed metal must never be subjected to a tensile strain during its service. This is because of the metallurgical characteristics of the sprayed metal as well as the fact that it is bonded in a mechanical fashion rather than by fusion. The main property of the sprayed metal is its high compressive strength.

The metallizing process does not warp or crystallize the shaft and does not require straightening after completion of the build up. It does not set up a stress in the shaft, and therefore the danger of breakage is eliminated. There are no hard and soft spots, and the metallized coating is uniform and dense. Pinholes rarely occur.

Metallizing will outlast welding in many cases, and it is generally faster. There is only one set-up in the lathe; the shaft is undercut, metallized, and machined in sequence. A metallizing gun will apply steel at the rate of about 10 lb. per hr. In addition, only $\frac{1}{32}$ in. is all that is necessary to allow for machining in the case of metallizing operations.

The ability to rebuild and salvage worn machine elements and parts with the metallizing gun offers to the textile engineer many advantages in both economy and production. The average cost of salvaging a part will be from 20 to 40% of the new part cost. The process can be accomplished in the space of a few hours; while days of waiting may follow the ordering, shipping, and installing of a replacement unit. Furthermore, tests have indicated that some parts rebuilt correctly by a metallizing process can outlast a new replacement component.

The parts which are capable of being salvaged by metal spraying cover a very wide range of the mechanical equipment field. Bearings, journals, spindles, plungers, pistons, crank pins, and all rotating or reciprocating wearing surfaces can be satisfactorily metallized. Immense Diesel pistons, press rams, and large pump impellers have been metallized as well as rotors and stuffing boxes.

TEXTILE USES. One of the troublesome maintenance problems in a textile mill is the rapid deterioration of the guide rolls for the mercerizer. The difficulty arises where the bronze used in the building of these rollers is steadily eaten away. This problem has been solved by metallizing these guide rolls with 18-8 stainless steel. Another problem in a textile mill is the armature shafts on individual machine motors. Worn shafts of this type can be metallized by spraying with 0.25 carbon steel. They can thus be built back to the original performance without having to remove the shaft windings or to press out the shaft.

The maintenance of the spindle jacks in the card room is very important. The wooden spindle that goes over these jacks will in time beat out the ends of the shaft, as well as the middle journal where the wooden arbor slips over it. These are put back into shape by metallizing with either 0.25 or 1.20 carbon steel.

Spraying with 0.25 carbon steel is also used for the repair of the journals of lap pins, the repair of the pump impeller shaft for the bleach solutions, and for the pump rod in the recovery plant. The treatment of extractor baskets is commonly done by spraying with zinc, while the best spray for acid boxes is 0.020 lead.

A very valuable economy effected by metallizing is in salvaging worn journals for spinning frames. Excellent results are secured by spraying these with 0.25 carbon steel. If expert grinding assistance is at hand, 1.20 carbon steel may be used instead.

Scoring and corrosion had worn a giant cast iron plunger in a large Georgia textile mill considerably under-size. This ram was scheduled for discard, but it was salvaged by the application of a fine, dense coating of nickel. Two metallizing guns were used with propane as the fuel gas, and the ram was restored to service after 27 hr. of continuous spraying. The job was sprayed to a thickness of $\frac{1}{16}$ in. with 209 lb. of nickel, using one pass of the gun.

These examples indicate to the maintenance engineer how and where the process can be applied to his own problems to keep his mechanical equipment constantly in the optimum operating conditions.

Christmas Seals

. . . Your Protection Against Tuberculosis

This is the interior of the plant of Joseph Black & Sons Company, Inc., manufacturers of Bachelor's Friend Guaranteed Sox, of York, Pa., after it had been repainted according to the principles of COLOR DYNAMICS.

Color Dynamics...

The scientific use of color to lessen eye fatigue of textile workers . . . improve quality and quantity of production!

ALERT executives in the textile industry, as well as in many other fields, are now making Pittsburgh's COLOR DYNAMICS an important part of their maintenance program.

They have become increasingly aware that eye fatigue causes headaches, digestive upsets, "nerves", depression. These lead to loss of morale, lower production and repeated absence from work.

The science of COLOR DYNAMICS aids in correcting these conditions. It has often proved that it cuts down unnecessary eye travel, reduces tension and the need for continuous adjustment of vision.

You can test for yourself the practical value of COLOR DYNAMICS in your manufacturing plant. Apply its principles to one or two machines or one department. See the difference it makes in the efficiency and morale of your operators!

For a comprehensive explanation of this revolutionary new science, get a free copy of our book, *Color Dynamics*. You'll find this explanation of the use of color energy both stimulating and practical. Write Pittsburgh Plate Glass Company, Paint Division, Dept. TW-127, Pittsburgh 22, Pennsylvania.

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PITTSBURGH STANDS FOR QUALITY PAINT AND GLASS

STOCK *Automatically Delivered*

where you want it . .

when you want it . .

in the quantity desired . .

With the Proctor overhead conveying and storage system for stock, it is possible to feed stock to card hoppers or storage bins entirely automatically. This system, which may be used in plants producing woolen, worsted, carpet yarn and asbestos, not only assures uniform feeding of the stock you want, when you want it and where you want it—but it does so with an absolute minimum amount of labor. It eliminates all the guesswork and expense involved in manual feeding. Briefly, here is how the system operates: Stock, which has been placed through a preliminary blending operation, is conveyed by an overhead system to a spot above either the card hoppers or storage bins. In the case of the hoppers, the system may be tied in with electrical controls on the feeds in such a way that when all of the hoppers are filled the conveying system ceases to operate and, likewise, automatically shuts off the preliminary equipment to prevent any overrun of material. Just as quickly as any hopper requires more stock, the system automatically begins operation and replaces the supply in the hopper or hoppers where it is needed. If the system is used to feed into storage bins, the electrical controls must be operated manually to govern feeding to the various bins, but otherwise the system is automatic. It may be developed in such a way as to include automatic re-blending-in-process if this is desired and fits into the mill's operation. Since no two plants' requirements are identical, the intelligent way to approach appraisal of such a system in your mill is to discuss your needs in detail with Proctor engineers and have them make recommendations for a system suited to your individual requirements.

PROCTOR & SCHWARTZ, INC.,
PHILADELPHIA 20, PA.

Napping Flannel

(Continued from page 131)

goods often move in the same direction through the various processing machines. The wet rolls have a tendency to compact the yarn, and the burden of offsetting this compactness is thrown on the nappers. Reversing the direction of running during intermediate processing tends to relieve this condition. A softening agent may be applied in preparation for napping, before which it is important that the goods be freed of all wrinkles.

In the napping process, the speed of the worker rolls is adjusted for the type of nap required. Slow speeds are maintained when a short nap is desired, and high speeds when a long nap is desired. Adjustments for intermediate speeds will produce intermediate lengths of nap.

It has been found that the left-drive (counter-clockwise) rolls should run faster than the right-drive (clockwise) rolls in order to produce an even nap. Rolls running out of balance will result in an uneven nap or a distorted appearance of the flannel.

WEIGHT LOSS. Control in the loss of weight during processing has been under constant study at Dundee. It has been found that sheeting for napping will have a weight loss of 8 to 10% in bleaching and an additional loss of 5 to 7% in the process of napping. The actual figures will vary with the type of goods.

Loss of weight in napping is controlled by the even adjustment of the worker rolls and prevention of too harsh an action during any given run. Another means for control is in the number of runs necessary to produce the desired results. If the worker rolls are properly set and adjusted on the first two to three runs through the nappers, the finished nap can be produced with fewer runs. Since considerable strain is met at times by flannel garments in service, it is highly important to maintain the breaking strength of the cloth; and each additional run on the nappers tends to reduce the breaking strength.

Following the installation of its Sanforizing equipment, Dundee experimented with Sanforizing its flannel and obtained some interesting results. In shrinking the goods, Sanforizing pulls the nap closer together and gives it a felted appearance and a soft hand. Because Sanforizing enhances the appearance and increases the breaking strength, the resulting goods have been well received.

When the gray goods are received at the bleachery, they are sewed together in lots of 4,000 lb. for processing. The first run is through a solution of sulphuric and hydrochloric acids of 1° to 1½° Tw. The goods remain in the pit from 2 to 3 hr. and are then washed, run into kiers, and boiled at 30 lb. gage pressure for 10 hr. From the kiers, the cloth is washed, run through a chemic, and soured with sulphuric and hydrochloric acids. This process is followed by a wash before a pass through the water mangle. The goods are then run over dryer cans, run through the softener, and finally dried. On goods to be dyed, the dyeing process is carried out prior to treatment with the softener.

NAPPING. Although great care may be exercised in preparation for napping, high-quality flannel of maximum strength cannot be obtained unless the operation of the nappers is carefully controlled and fine machine adjustments maintained. During the first run on the nappers, it is important that the rolls be set for a light stroke. This will start the pick-up of the nap and not weaken the fabric. During each successive run, the nap is picked up gradually until the desired quality of texture is gained. On the last run, the rolls are adjusted to beat the nap back into the fabric in order to produce a level and even appearance and a compact surface. Dundee makes six runs through the nappers on cloth weighing 4.25 yd. per lb. and eight runs of goods weighing 3 yd. per lb.

Constant inspection and proper setting of strippers is necessary to insure clean worker rolls and to prevent damage to napper clothing. Care should be exercised in handling worker rolls in order to prevent damage to the napper clothing.

In grinding worker rolls, all rolls for the same machine should be ground for approximately the same length of time and at the same pressure of the grinding roll to obtain similar degrees of sharpness and diameter. When new napper clothing is put on a roll, each roll should be ground to insure uniformity of the entire set.

If brushes are kept clean and properly set, rolls will usually need grinding about once in 3 yr. However, this time varies; and it is better to keep rolls sharp than to struggle with defects resulting from dull rolls.

Another important adjustment on the napping machine is the tension on the feed roll. Proper adjustment of this tension prevents slackness in the cloth as it is being run. Slack goods, of course, cause the napper roll to cut into the material and jam the machine.

The napper feed rolls should be care-

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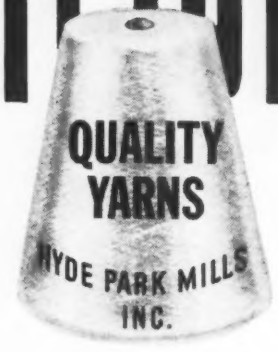

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Our flexible methods of operation assure your requirements. Tell us your needs and we will meet them promptly.

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"SPECIALISTS IN ENGINEERED SERVICE"

fully adjusted before starting the napper; and, if any additional adjustment is necessary to obtain proper tension of the cloth over the napper rolls, it should be made immediately upon starting up the machine.

Dundee believes that the results it has obtained in producing its flannelette in white, light blue, tea rose, gold, pink, dark nude, and flesh colors are due to careful training and know-how in each step of manufacture from raw cotton to finished product. While exactness may be calculated in figures for some operations, there are others in which ingenuity, feel, or "just know" are necessary. Training, coordination, and experience weigh heavily in the production of quality flannel.

Spooler's Task

(*Continued from page 111*)

It was recognized, of course, that variations in the size of supply (from spinning or twisting) bobbins and in the yarn count itself would affect the length. However, since these charts were not to be used as the basis for incentive wages for spoolers, it was felt that this method of computing yarn length would be sufficiently accurate for the purpose.

CHART DATA. Having determined the above items, the data to be entered on the charts was computed as follows:

For 1-run woolen yarn—

Yards per quill = 120
Yards per cone = 4,800
Running time per quill:
120 yd. ÷ 350 yd. per min. = 0.343 min.
To this time must be added 0.07 min. to allow for the time the machine requires to erect a full quill and transfer an empty one. Therefore: 0.343 + 0.070 = 0.413 min.
Running time per cone:
4,800 yd. ÷ 350 yd. per min. = 13.714 min.
To this time must be added 0.07 min. for each quill obtained from the cone because each time a quill is transferred the spindle stops. This increases the time required to empty the cone.
Therefore, 4,800 yd. per cone ÷ 120 yd. per quill = 40 quills to be obtained from the cone, and 40 × 0.07 min. = 2.800 min.
Then running time per cone = 13.714 + 2.800 = 16.514 min.
Quills required per spindle per hour:
60 min. ÷ 0.413 min. running time per quill = 145.3 quills.
Cones required per spindle per hour:
60 min. ÷ 16.514 min. running time per cone = 3.63 cones.

Next the spoolers' tending time per spindle per hour was computed for 1-run wool yarn as follows:

145.3	quills × .03 min.	= 4.359 min.
3.63	cones × .30 min.	= 1.089 min.
1.0	breaks × .26 min.	= 0.260 min.

Tending time per spindle per hour = 5.708 min.

Allowing a spooler 15% or 9 min. in each hour for fatigue and personal needs the task is:

60 min. — 9 min. = 51 min. And:
51 min. ÷ 5.708 min. tending time per spindle per hour = 8.93 spindles to be assigned to the spooler, which would call for a task of 9 spindles.

Then 1 spindle would = 11.1% of the task

$\left(\frac{1.00}{9.00} = 0.111 \text{ or } 11.1\%\right)$

PRODUCTION. To compute production it was necessary to allow sufficient time for each spindle to eject the quills it produces in 1 hr., also the time it will be stopped for cone replacements and yarn breaks. Again for 1-run woolen yarn this would be:

145.3	quills × 0.07 min.	= 10.171 min.
3.63	cones × 0.30 min.	= 1.089 min.
1.0	breaks × 0.26 min.	= 0.260 min.

Total stop time per spindle per hour = 11.520 min.

Since the spooler is asked to work 51 min. out of each 60 min., the continuous running time per spindle per hour would be:

51.00 min.—11.520 min. = 39.480 min.

Then, to compute production:

8.93 spindle × 39.480 min. × 350 yd. per min. ÷ 1 run × 1,600 yd. = 77.1 lb. per hr.

Production per spindle per hour therefore would be:

77.1 lbs. ÷ 8.93 spindles = 8.63 lbs.

These computations were repeated for the entire range of yarn counts respooled in the mill, and the data entered on the charts on page 111. It was not necessary to use such detailed mathematics as was used in the example of 1-run woolen yarn because the increase in yards per quill and cone is a constant for successive yarn counts. This made it possible to factor out numerous constants which considerably simplified the mathematics involved.

To illustrate how the charts are used, suppose a part of the filling yarn schedule calls for:

275 lb. of 1-run woolen yarn
375 lb. of 2/3-run woolen yarn
190 lb. of 1/11 worsted yarn
200 lb. of 2/11 worsted yarn

If these yarns are to be respooled in 8 hr., how many spindles should be placed in operation for each yarn and

STAINLESS STEEL SOLVES

MAJOR TEXTILE PRODUCTION PROBLEMS

Wet goods equipment made of Stainless Steel eliminates (1) the necessity of frequent replacements or shutdowns of machinery and parts operating under severe corrosive conditions, and (2) costly loss of fabric from stain, discoloration or snagging.

Complete protection for even the most delicate yarns and fabrics is assured when your equipment is made of ARMCO Stainless Steel. Its shiny, smooth surface prevents snagging, eliminates color carry-over. And, being one of the toughest and strongest of all metals, it resists denting and scratching.

The polished surface of ARMCO Stainless also makes it easy to clean machines, in most cases, simply by rinsing with water. Color changes are much faster with this rustless steel. It needs no rust preventive and has less attraction for gums and sizes.

There are many cost-cutting uses for ARMCO Stainless Steels in your mill, and a proper grade of sheets, strip, bars and wire for almost every application. For full information, get in touch with your equipment supplier, or write The American Rolling Mill Company, 429 Curtis Street, Middletown, Ohio. Export: The Armco International Corporation.

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Scrap piles in most steel mills are critically low. Unless this shortage is relieved, everybody must wait longer for steel. You can help. Check your unusable tools, machines and obsolete equipment. Collect all the iron and steel scrap you can find and speed it through regular channels to the mills. Remember—*more scrap means more steel, sooner.*

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• SPECIAL-PURPOSE SHEET STEELS • STAINLESS STEEL SHEETS, STRIP, BARS AND WIRE

THE HEADS

Won't twist off!

Fig. 1507-B

UNBRAKO

Reg. U. S. Pat. Off.

SQUARE HEAD SET SCREWS

If and when an "Old Style" Square Head Set Screw twists off—Boy, oh, Boy—what it costs to get it out, especially if it's in an awkward place.

The Unbrako "Won't Twist Off" Square Head Set Screw, made of a special alloy steel, saves all this—thus, reducing cost of maintenance materially. **Write for the "Unbrako" Catalog of Screw Products.**

"Unbrako" Products are sold entirely through Industrial Distributors.

Fig. 509

Illustration at left. There was a blind tapped hole in this piece of steel. An Unbrako "Won't Twist Off" was screwed into it and forced through the bottom, splitting it three ways—nevertheless, the "Unbrako" didn't show a scratch, which speaks for itself.

OVER 44 YEARS IN BUSINESS

"UNBRAKO" SOCKET SET SCREW WITH KNURLED CUP POINT

The knurled cup point of this "Unbrako" makes it a Self-Locker, the points dig in and hold fast even when subjected to the most chattering vibration.

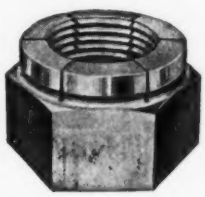
Pat'd and Pats. Pend.

"UNBRAKO" SOCKET SET SCREW WITH KNURLED THREADS

Knurling the "Unbrako" Socket Set Screw, as shown, swages the threads and an excellent Self-Locker is the result—For use where the points such as: flat, dog, cone and oval do not lend themselves to knurling.

Pat'd and Pats. Pend.

"FLEXLOC" SELF-LOCKING NUTS



The All-Metal, One-Piece "Flexloc" is a Self-Locking Nut that won't budge, except when a wrench is used. Every thread—takes its share of the load and being a "stop" nut it will stay locked in any position on a threaded member—"a real fastener," if ever there was one. Free samples.

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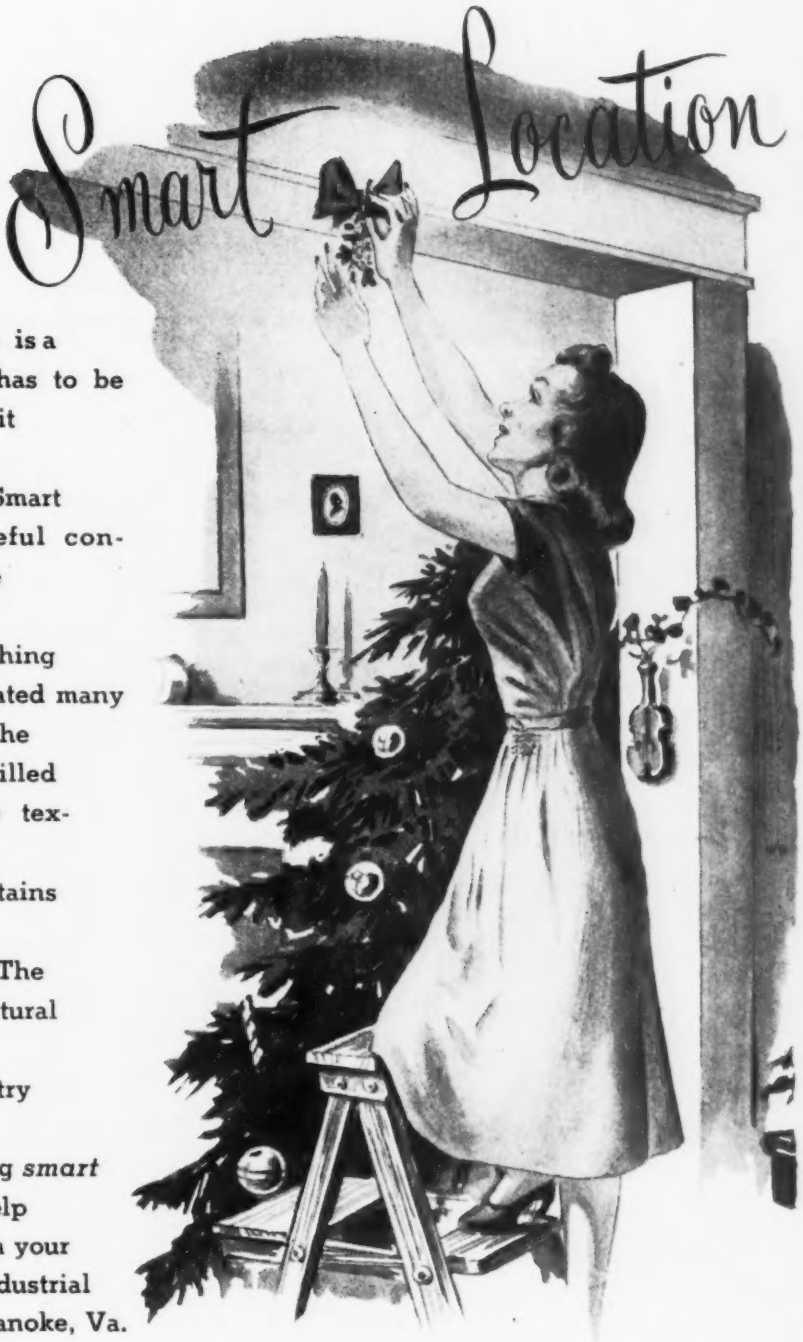
Smart Location



Spotting a sprig of mistletoe is a matter for careful judgment. It has to be located in a promising spot, or it fails completely.

So it is with plant location. Smart plant location takes into careful consideration the advantages of the territory as weighed against the needs of the industry. Weighing of these two factors has demonstrated many times that the territory served by the Norfolk and Western is a land filled with "promising spots" for the textile industry.

The Norfolk and Western maintains complete, detailed information about all sections of this land. The railroad's Industrial and Agricultural Department is staffed by men with intimate knowledge of industry needs — men who have been helpful to scores of others seeking *smart locations,* and who are eager to help you. For confidential advice with your problem, communicate with the Industrial and Agricultural Department, Roanoke, Va.

Norfolk and Western RAILWAY

FOR BETTER PLANT LOCATIONS

In Norfolk and Western territory, you will find an abundance of varied raw materials . . . plenty of power and pure water . . . intelligent, native labor . . . favorable tax policies . . . an almost unlimited supply of superior, all-purpose Bituminous coal . . . and Norfolk and Western Precision Transportation to markets of the nation and, through the Port of Norfolk, to the markets of the world.

PACKAGE DYEING OF ACETATE YARNS

On filament or spun acetate yarn. This process eliminates the making of skeins.

★

Atlantic Rayon CORPORATION

Dyers and Converters of Synthetic Yarns for All Industries

Plant at Providence 1, R. I.

BRANCH OFFICES:
Empire State Bldg., 5th Ave.
New York 1

3701 North Broad St.
Philadelphia 40

★

how many spindles should be assigned to each spooler for a correct task?

The chart shows that for 1-run woolen yarn, the production per spindle per hour is 8.63 lb., which for 8 hr. = 60 lb. Then if the desired production (275 lb.) is divided by the production per spindle per 8 hr. (69 lb.):

275 ÷ 69 = 4 spindles to be placed in operation.

And since 1 spindle = 11.1% of a full task, 4 spindles will equal 44.4% of a full task.

Working this out for the part of the yarn schedule shown in the foregoing, one arrives at the information in Table II.

Therefore, one operator would be assigned 4 spindles of 1-run woolen yarn, 9 spindles of 1/11 worsted, and 5 spindles of 2/11 worsted for a total task load of 102.7%.

A second operator would be assigned 8 spindles of 2/3-run woolen, plus another yarn or yarns to equal a task load of approximately 100%; or, if no other yarns are to be respooled, the operator would be assigned 11 spindles of 2/3-run woolen yarn.

These 13 spindles would produce 80.1 lb. per hour and would be kept in operation for approximately 4.7 hr. to produce the required 375 lb. (375 ÷ 80.1 = 4.68 hr.).

With the aid of these charts it is now possible to schedule filling production accurately and make the most efficient use of winding equipment and operators.

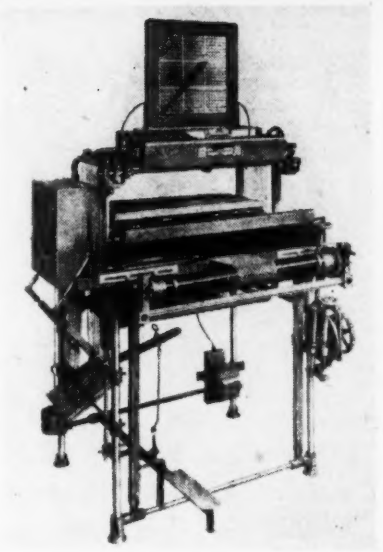
Textile Equipment News

(*Continued from page* 166)

nonmetallic for smoother operation. Drive may be V-belt or roller chain, with individual motor if desired. Standard scutchers are available in widths of 50, 55, 60, 66, 72, 78, 84, and 90 in. Special machines may be constructed to any width ordered.

Sample Loom Explores Possible Dobby Patterns

A highly versatile sample loom has been produced by The Sample Weaving Machine Co., Liestal, Switzerland. This loom will automatically multiply manyfold the patterns possible with one drawing-in, of its 24 harnesses. The actual weaving is done as with a hand loom; the shuttle and lay motions are accomplished with the hands and the shedding with a foot pedal. The important part of the machine is the electromagnetic dobby which determines which harnesses are raised and which lowered in preparation for each pick. The individual

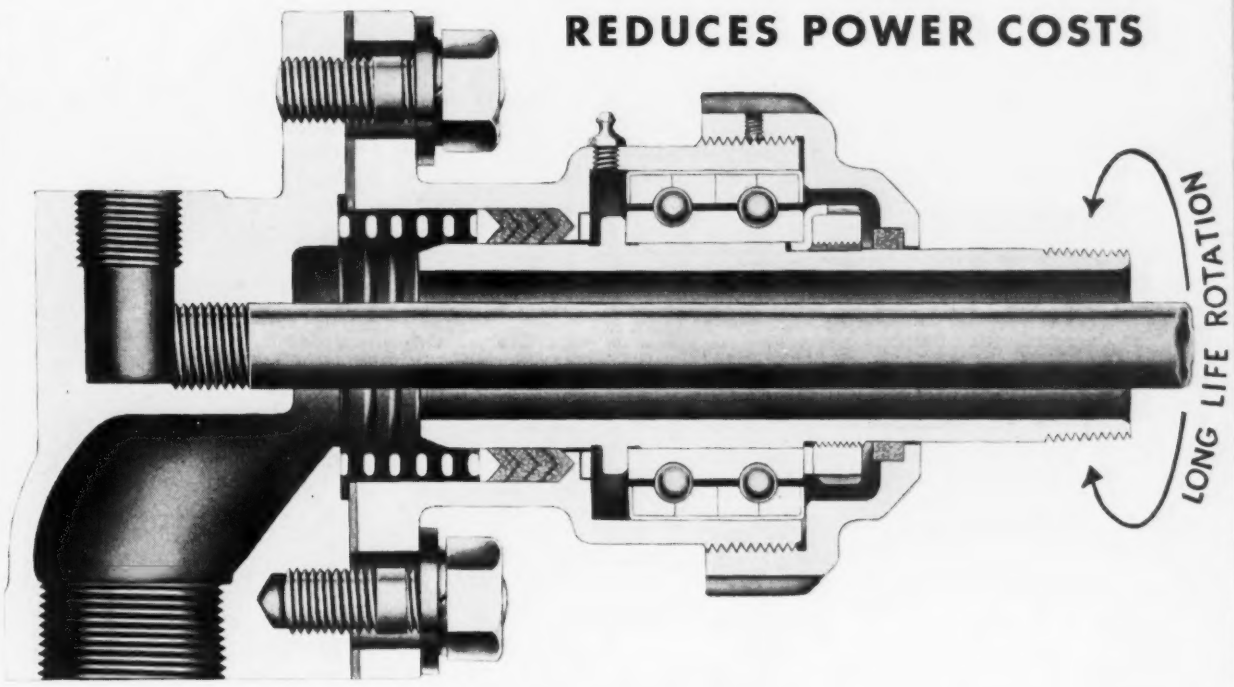


All patterns possible with any 24-harness draw can be woven in an 8-ft. sample by this new sample loom. (Sample Weaving)

harnesses are controlled by a paper card in which a pattern is punched. Needlelike feelers pass over these holes and by resulting contacts on a magnetic spool operate the harnesses.

Two cylinders revolving side-by-side change the control of the contacts from harness to harness and thus vary the order of the harness operation in almost infinite variety. Actually two punched cards may be used to permit the ground-weave yarns to be actuated independently of the figure-forming yarns. The sample woven may be about 8 yd. in length and 20 in. wide. Much time is saved in sample preparation, and a variety of patterns which lie outside any possible scope of the conventional method of preparing new designs are claimed. By changing contact plugs on a selecting board the operator further alters the standard weave. The selecting board has 24x24, or 576, contact points. The dimensions of the loom are 73 in. in height, 48 in. in width, and 44 in. in length. The net weight is 507 lb. The current consumption is said to be very small.

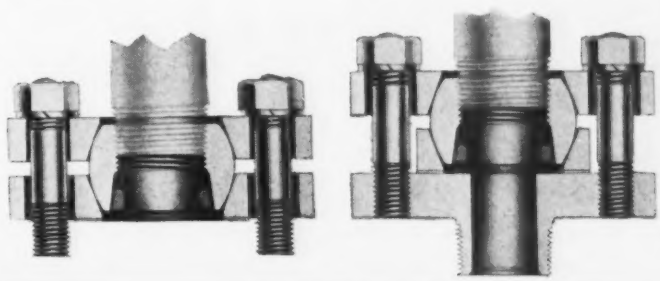
This sample loom not only offers a multiplicity of dobby patterns to select from, but is said to save expense in sample preparation inasmuch as it does not take any production machine off its job and permits trials with numerous colors by the dyeing of not more than one yarn bobbin of each color. A warping machine is available from the same company, and it reels from a creel of 1 to 15 cones. The reel is of large diameter and one circumference is the warp length; thus the revolution counter also records the number of ends in the warp under preparation.



The BARCO Revolving Joint

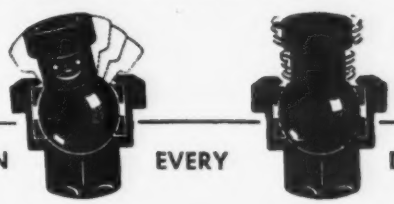
Designed especially for the textile industry, the Barco Revolving Joint is used on all types of rotating applications, including slashers, calenders, sanforizers, and dry cans. Barco minimizes steam leaks and its lower turning torque reduces power costs. Textile weaving and finishing plants or bleacheries have found Barco unusually successful in cutting maintenance worries. For more particulars about this and other Barco Flexible Joints for the textile industry, write Barco Manufacturing Company, Not Inc., 1834 Winnemac Avenue, Chicago 40, Illinois.

BARCO BALL FLANGE— Cross-section view of Barco Ball Flange for use on threaded and flanged rolls and for correcting roll misalignment. Sleeve can rotate concentric even though threads on roll are tapped off center.



BARCO FLEXIBLE JOINTS

Not just a swivel joint ...but a combination of a swivel and ball joint with rotary motion and responsive movement through every angle.



"MOVE IN EVERY DIRECTION"

FREE ENTERPRISE—THE CORNERSTONE OF AMERICAN PROSPERITY

In Canada: The Holden Co., Ltd., Montreal, Canada.

The HEART of the Cotton Belt is the Hub of Linter Service by RAYCO

● Our expanded Cotton Linter Division now has its headquarters at Memphis, Tennessee. This central location places our licensed fiber specialists in constant close contact with the mills at the source of procurement. We also maintain offices at other key cotton centers—Dallas, Atlanta and Charlotte.

The RAILWAY SUPPLY & MFG. CO. and Affiliates

Specialists in Grading, Marketing and Processing Cotton and Synthetic Fibers

General Offices:
CINCINNATI, OHIO

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Cincinnati, Ohio ● Franklin, Ohio ● Atlanta, Ga. ● Charlotte, N. C. ● Covington, Tenn. ● Greensboro, N. C. ● Memphis, Tenn. ● New York, N. Y. ● Chicago, Ill. ● Detroit, Mich.

RAYCO
COTTON LINTERS

Georgia Tech Plans New TEXTILE BUILDING

By **E. DALTON WHITE**

INNOVATIONS IN structural design and construction, combined with effectiveness in mill and classroom layout characterize the new $1,500,000 textile engineering building to be constructed by Georgia School of Technology in Atlanta, Ga.

Details of floor plans and equipment selection have been carefully worked out to provide combination class and shop instructions in all phases of textile manufacture. Herman A. Dickert, director of the A. French Textile School at Georgia Tech, states that the selection of equipment will permit instruction and demonstrations of each basic fiber and at the same time allow for interchange of other fibers.

For the operation of the new engineering school, Mr. Dickert has programmed courses which equip the student with fundamental knowledge of all types of basic equipment and the interchangeability in processing of different fibers and combinations.

Of major interest is the air-conditioning system in the operating areas, with unit controls for each department. This type of system will allow for demonstrations and experiments over a wide range of conditions.

EQUIPMENT. A certain amount of old equipment now in use in the school will be retained for instructional purposes and will be fairly representative of types currently used in textile mills. The most modern equipment will be installed so that graduates may become familiar with the latest designs and improvements. It is planned to have a balance of all types and ages of equipment, so that as improvements are made obsolete equipment can be replaced without having to replace all of it.

A committee of the Textile Education Foundation, Inc., is studying methods of equipping the new engineering school; and it is expected that both textile mills and machinery manufacturers will participate. The foundation was conceived by the late Harrison Hightower, a Georgia Tech graduate and football star, who was president of the Thomaston Cotton Mills. He was chairman of the committee which raised over $550,000 granted Georgia Tech for staffing and other operating expenses of the textile school.

THREE STORY. Of contemporary design, the building will have three levels and will be of reinforced concrete faced with colonial brick. Spandrels and sun-shade ledges on the south side will be of gray tile. Side walls will be of glass brick with ventilation sash for each room.

Columns are equally spaced on 24-foot centers with temporary type partitions which can be shifted to accommodate changes in machinery layout. The partitions are solid to eye level with glass in a limited section for observation. Instead of supply rooms,

TECH'S TEXTILE EQUIPMENT

OLD EQUIPMENT NOW IN USE

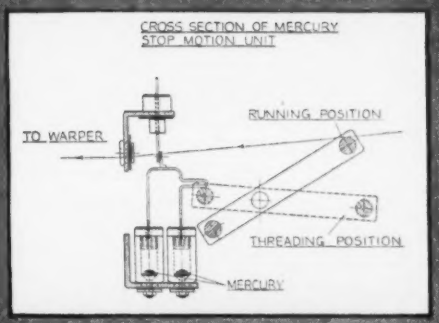
- 17 Looms
- 6 Spinning frames
- 4 Flat-top cards
- 2 Roving frames
- 5 Knitting machines
- 2 Loopers
- 10 Sewing machines

NEW EQUIPMENT

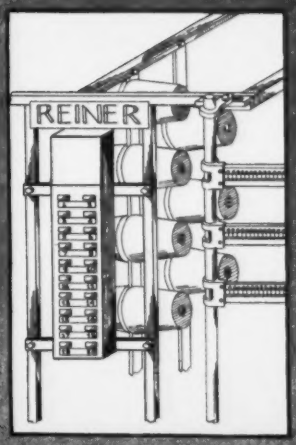
- 17 Looms
- 3 Spinning frames
- 1 Card, roller-top
- 5 Roving frames
- 1 Napper
- 1 Cloth folder
- 1 Shearer
- 16 Knitting machines
- 1 Full fashion machine
- 1 500-position cone creel
- 1 Dyeing machine (raw stock)
- 1 Multiple single-end yarn tester
- 1 Shirley analyzer (cotton fiber)
- 1 Set drying forms
- 1 Dye beck
- 1 Dye machine (package)
- 1 Single-skein dye machine
- 1 Skein and fabric tester
- 1 Twist tester
- 1 30-ft. cold tenter frame
- 12 Sewing machines
- 1 Cone winder
- 2 Quill winders
- 1 Small calender
- 1 Dye jig

The combination of old and new equipment to be installed in Georgia Tech's new textile building was planned to provide variety, interchangeability, and completeness.

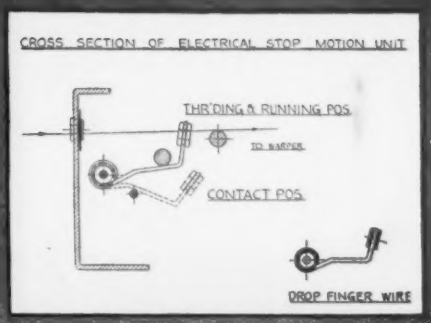
modernize your creels with REINER FEATURES



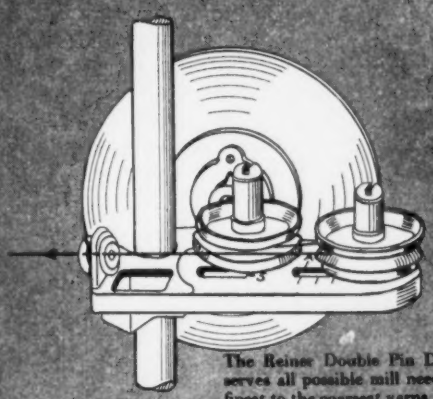
The Reiner Mercury Stop Motion Units are made up from 20 to 50 eyelets per unit, readily adaptable to any existing creel. Drop wires are available in 3 different weights, permitting the most accurate and sensitive adjustments of your warping needs. Metallic contacts, hence no lint or corrosion interference. The units operate on 18-24 volts.



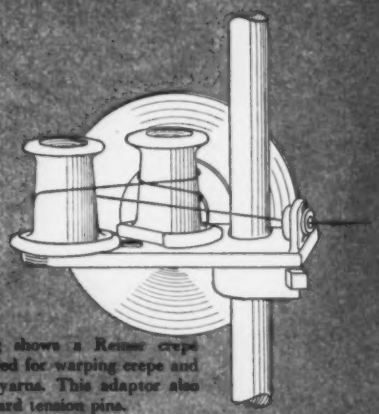
The Reiner Annunciator is attached to the front of the creel, indicating yarn breaks, and the stop motion unit in which it occurs, guiding the operator to the breakage point without any loss of time. Drop wire action due to slackening of threads after a sudden stop is not registered by this device, and thus no search for the initial yarn break is needed. An automatic reset eliminates all need for handling the Annunciator, once the breakage has been repaired.



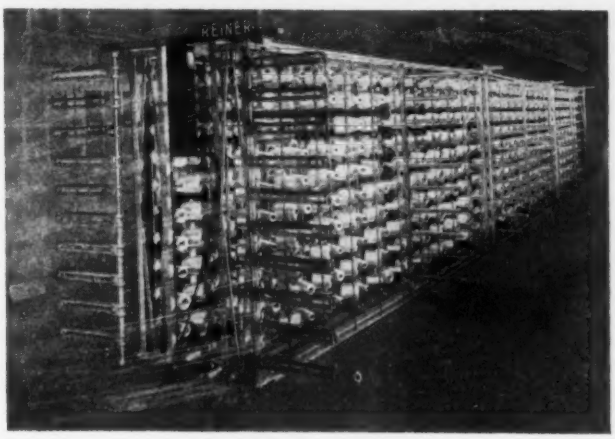
The Reiner Drop Lever (electrical) Stop Motion can also be attached to any existing creel. It is best suited for rugged operation of heavy yarns. Drop wires are plated with a corrosion resistant. The unit operates on 18-24 volts.



The Reiner Double Pin Disc Tension serves all possible mill needs, from the finest to the coarsest yarns. The tension range is obtained by running the yarn in different ways around the two shiftable tension posts (or one post, if desired) and by adding washers. This tension can be applied to any existing creel.



This drawing shows a Reiner crepe adaptor, needed for warping crepe and combination yarns. This adaptor also fits the standard tension pins.



When production depends on a single thread, you will want to be certain about the creel and warping equipment you are using. Reiner warpers and creels have an unexcelled record of flawless, economical performance made possible by precision work and features such as those outlined above. There are many others, all contained in the Reiner Creel Catalog, which is yours for the asking.

ROBERT REINER, INCORPORATED

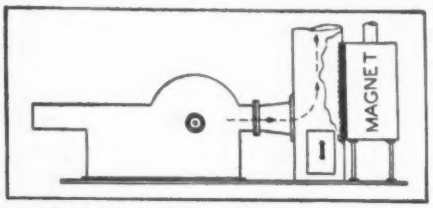
550-564 GREGORY AVE., WEEHAWKEN, NEW JERSEY

MEMCO
MAGNETIC SEPARATORS

PROTECT MACHINERY... STOP FIRE LOSS...

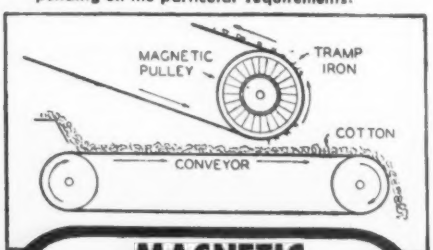
ECONOMICALLY!

Hundreds of applications in the textile field prove the efficiency and economy of MEMCO separators. They effectively remove all tramp iron, thereby preventing damage to garnett cylinders, and removing the major cause of opener-picker fires. MEMCO magnetic pulleys and plate separators are easy to install in any conveyor system. They require negligible maintenance and are available in sizes and pulling strength to meet the requirements of any application. MEMCO equipment is backed by a reputation earned in over a quarter century of experience in magnetic separation. For complete details write today.



MEMCO Vertical Plate magnet installation (above)—The corrugated bronze surface covering the magnet prevents friction sparks when iron strikes the plate. The accumulated iron is easily removed.

MEMCO Magnetic Pulley Separator (below)—This powerful magnetic pulley installed over the conveyor belt effectively removes all iron passing beneath it on the conveyor. Many other types of installation are employed, depending on the particular requirements.



MAGNETIC ENGINEERING & MFG. CO.
750 VAN HOUTEN AVE., CLIFTON, N. J.
AFFILIATED WITH TROWBRIDGE CONVEYOR CO.

the wall space around the partitions between different areas will be used for specially designed cabinets and cupboards.

Fluorescent lighting will be used throughout the building. Heat will be supplied from the school's central heating plant to recessed hot-water convectors.

CLASSROOMS. All classrooms face south, with the exception of the cotton classing laboratory and the design laboratory, which face north. The floor slabs which extend on the outside of the building act as sun shades for the floor below.

The spacious auditorium will seat approximately 300 and will be used for student demonstrations and lectures. It also will be available for meetings of textile associations and societies, as well as other engineering groups.

The main lobby will house the textile exhibition gallery where historic machinery and textile products will be displayed to indicate the progress in textile engineering. Space has been arranged for commercial exhibits.

DYES & CHEMICALS

Dan River Develops Wrinkle-Resistant Cotton

Dan River Mills, Inc. has developed a process for making cotton fabrics resistant to wrinkling by use of Resloom C, a melamine resin manufactured by Monsanto Chemical Co. Application of the resin for wrinkle-resistance required much redesigning of yarns and fabrics, it was reported; and while not all fabrics have responded alike to the treatment, work is in progress toward application of the finish to all types of cotton goods. Fabrics successfully treated so far are cotton chambrays, ginghams, plaid shirtings, and tweeds. The hand and permeability of the fabric are unaffected by the process, and it is claimed that the resistance to wrinkling increases with repeated laundering. A very slight loss in tensile strength was admitted.

The resin and "know-how" for application are available from Monsanto Chemical Co,; but because the application must be individualized to suit the characteristics of each type of fabric treated, it is estimated by Dan River and Monsanto that it will take six months to a year for any mill to achieve the degree of success reached by Dan River.

Three Agents Announced by General

COVERAL AS, an essential oil with very powerful deodorizing properties, has been announced by General Dyestuff Corp., 435 Hudson St., New York, N. Y. As little as 0.1% will neutralize or pleasantly mask most obnoxious odors likely to develop on textile fabrics. The agent is compatible with most finishing compounds. It can be applied in the final finishing operation, or separately by spraying, padding, or in the final rinse water.

NEKAL, NF is a wetting assistant in application of reduced vat dyestuffs by the padding process. It has outstanding non-foaming properties, it is claimed, and is an excellent assistant in scouring, pasting of dyestuffs, and levelling and penetrating of dyeings. Chemically it is an alkyl naphthalene sulfonate and has the characteristic good stability of this group of compounds.

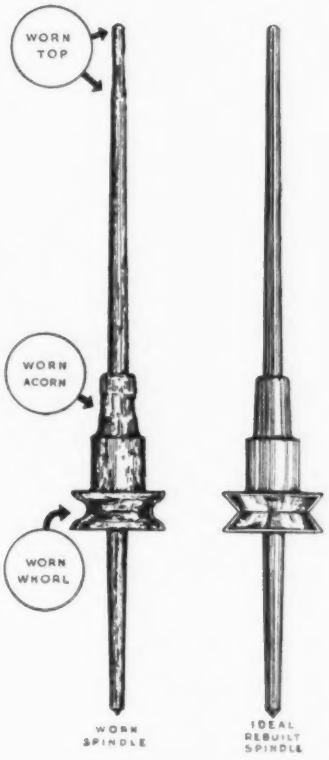
EULYSINE A is a straw-colored, practically odorless, alkaline liquid with good wetting properties. It is recommended for dyeing sulphur colors to eliminate or minimize bronziness, or as an addition to crabbing liquor with improvement in the subsequent scouring operation. Eulysine does not impair wool fiber, even at boiling temperature. Its behavior is entirely different from that of soda, potash, or caustic alkalies, it is claimed.

Resin Imparts Crispness to Fabric

KANDAR, Naugatuck Chemical Co., Div. of U. S. Rubber Co., Naugatuck, Conn.

Improved hand, fullness, crispness, sharper patterns, and brighter colors are claimed for cotton and rayon fabrics treated with Kandar, a new resin finish. A permanent finish which can be applied with no additional equipment, Kandar requires no curing and has no objectionable odors. The resin is stable to heat, particularly stable to light, and is very resistant to both laundering and dry cleaning. White or colored fabrics treated are free from yellowing of the resin in the finish. Normal applications range from 2 to 3% on the fabric (dry basis).

About PROFESSIONAL STANDARDS...



Ideal's method of rebuilding spindles is scientifically accurate. Nothing is left to chance . . . every spindle is rebuilt to factory blueprints. When your spindles come back to you they are just as good as new.

When flyers and spindles are rebuilt at the same time, worn barrels are swaged with Ideal's swaging machine to fit spindle tops perfectly. Precision balance is assured at highest running speeds with Ideal's Balancing Machine.

Pictured here is a spinning spindle before and after being rebuilt by Ideal's advanced methods. The rebuilt spindle at the right looks and *is* as good as new.

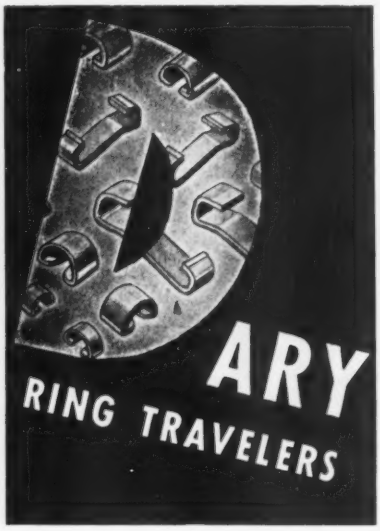
We furnish roving spindles and flyers while yours are being repaired

IDEAL MACHINE SHOPS

INCORPORATED

BESSEMER CITY, NORTH CAROLINA

3RD YEAR OF CONTINUOUS SERVICE TO TEXTILE MILLS



HIGH SPEED LIVING

Travelers live at a mile a minute! That is their generally accepted maximum surface speed. At such speed it is obvious that durability and quality are paramount. DARY PROCESSED travelers are tops in wearability and performance.

There is a Dary Traveler for any spinning or twisting job with any type or count yarn, and on the spinning ring the Dary Traveler keeps up with higher spindle speeds. Therefore, for a traveler with a long useful life, specify Dary.

The friendly Dary Representative near you will be glad to introduce you to Dary and to help you with any spinning or twisting problem.

PROCESSED
SYMBOL OF SUPERIORITY

The DARY RING TRAVELER CO.
TAUNTON, MASSACHUSETTS

JOHN E. HUMPHRIES, BOX 843, GREENVILLE, S. C.
JOHN H. O'NEILL, BOX 720, ATLANTA, GA.
H. REID LOCKMAN, BOX 813, SPARTANBURG, S. C.

Books of Interest

Compressed-Air Generation and Use

COMPRESSED AIR HANDBOOK; Compressed Air & Gas Institute, 90 West St., New York 6, N. Y.; 388 pages, $3.00 in U.S.A. ($3.50 elsewhere).

This handbook has been compiled and edited by the Compressed Air & Gas Institute through the cooperation of its membership. It contains much useful information for users of compressed air in any of its varied types, methods, and purposes.

The contents of this handbook are divided into the following five main sections: (1) typical applications of compressed air and gas; (2) representative types of compressor installations; (3) portable air-operated tools and rock drills; (4) engineering the compressor installation for maximum efficiency; (5) compressed air engineering data and test procedure. The book is well illustrated and the engineering data appears complete and practical.

Under textile uses of compressed air, the handbook lists the following: agitating and handling dyes and solutions; air motors, hoists, and lifts; automatic manipulation of valves on steam and water lines; automatic sprinkler systems; cleaning looms, spinning frames, etc. by air jet; humidifying systems; moistening goods; pumping water; operating baling presses; starting internal combustion engines. Any one mill may use only a few of these, but doubtless every mill could add a number of other uses to this list.

Attracting and Repelling Various Insects

CHEMICAL INSECT ATTRACTANTS AND REPELLENTS, by Vincent G. Dethier; The Blackiston Co., 1012 Walnut St., Philadelphia 5, Pa.; 289 pages, $5.00.

Knowledge of chemical, physical, physiological, and botanical factors is brought to bear on the little understood branch of science which this book covers. Its object is to aid in the search for effective chemical control of insect pests.

The book under review, however, is not a compilation of recipes for attractive or repellent substances nor a manual on insect control. It is rather a consideration of insect behavior under conditions of stimulation and response. Each chapter is concluded with a full list of references and the book's index is fully detailed.

New Edition Merrill's Notes on Yarn Manufacture

COTTON OPENING AND PICKING; COTTON CARDING; COTTON COMBING; COTTON DRAWING AND ROVING—four teaching texts by Prof. Gilbert R. Merrill, of Lowell Textile Institute, Lowell, Mass.

This series of texts on cotton manufacturing processes prior to spinning were first issued between 1933 and 1940. They went through a second edition and have recently been issued for the third time. Used primarily for instruction in the cotton department of Lowell Textile Institute, the books are clear expositions of the functioning of the machines and processes covered. They have a new sewed binding which permits them to be opened out flat.

The Story of Wool in One Short Lesson

WOOL IN THE UNITED STATES; National Association of Wool Manufacturers, 386 Fourth Ave., New York, N. Y.; 34 pages.

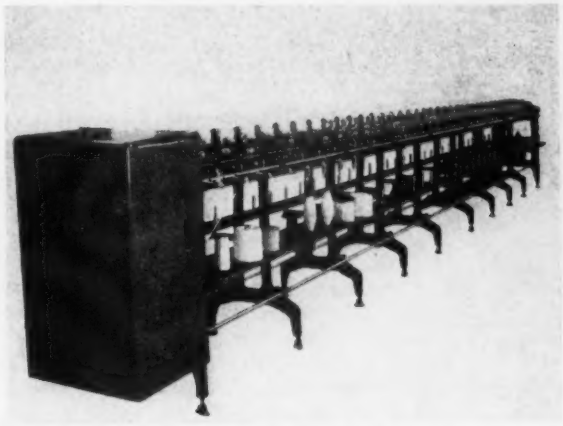
This brochure covers wool from the sheep's back to the finished fabric. Current statistics are used as the book presents each stage of the process to inform the reader as to location, size, and character of the various segments of the business. The pictures are well selected and sketches are used to make clear some of the manufacturing steps.

Illustrated Brochure on Belgian Linen Industry

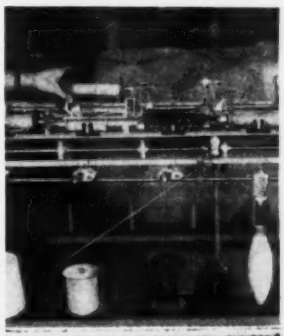
THE FLAX AND LINEN INDUSTRY IN BELGIUM, by Georges Impe; National Association of Belgian Flax Weavers, 10 Casino Sq., Courtrai, Belgium; 44 pages.

This informative brochure mentions briefly at the start that Plautus in 200 B.C. wrote about flax growing in the area now Belgium. It continues in a well-illustrated section to follow the steps of modern linen production from the sowing of flaxseed to the finishing of the fabric.

SIPP-EASTWOOD EQUIPMENT FOR BETTER PRODUCTION



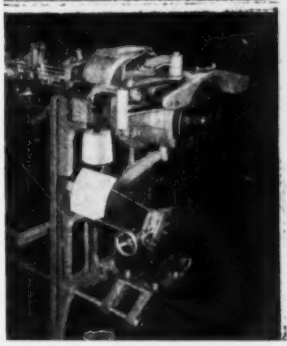
This new Sipp-Eastwood Winder-Redraw makes possible smoother traverse and higher speeds than with conventional redraws. The speed is limited only by the strength of yarn—500 yards per minute or more.

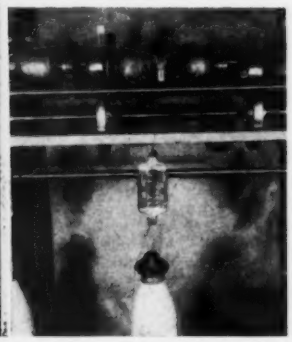


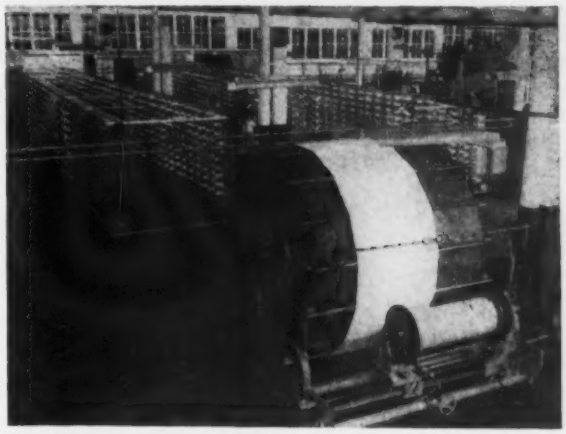
1—Quick, easy doffing. Note self-opening spindleless attachment. Self threading alsimag guide and revolving pulley tension.

2—Improved drive allows for quick changes of traverse, speeds and warps.

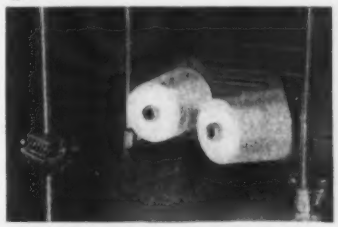
3—(Below) Washboard tension. Our standard gate tension is particularly adapted for redrawing nylon.



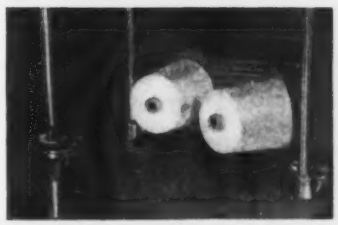




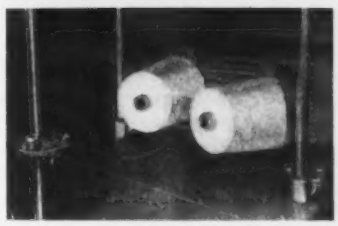
Sipp-Eastwood Over-end Magazine Cone Creel and Horizontal High Speed Warper for high speed warping from cones, spools, tubes, or pirns.



1—Our gate type creel tension of hardened steel, gray satin finish, chromium plated to resist wear.



2—Pulley type creel tension. Retarding action is obtained by friction applied to the rotating members—not to the yarn.



3—Washer type creel tension. Employs double set of washers, giving perfect tension for fiber yarns, as well as for fine denier flat yarns.

THE DENSIMETER.

Measures density of cops, quills, spools, and other packages. Used in conjunction with the Tensometer to assure uniform density of packages.

THE TENSOMETER
New sturdy model.

Measures tension of yarns and aids in the prevention of seconds in woven fabrics due to uneven tensions in warping, winding and quilling.

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SIPP-EASTWOOD CORPORATION

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From ROUGH to SMOOTH . . . OVERNIGHT!

If installed in the afternoon, heavy-duty STONHARD RESURFACER can be used the following morning. Used equally effectively as an overlay or a patch, it bonds firmly to worn wood or concrete and provides a smooth, resilient surface that's warm, dry and fire-resistant — a natural for textile mills!

Return the coupon for free textile mill floor maintenance guide . . . there's no obligation.

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Building Maintenance Materials
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Please send information about STONHARD RESURFACER and free textile mill floor maintenance guide.

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Mr. ..... Title .....
Address .....
City ..... Zone ... State ..

News of the month

Textile Calendar

Materials Handling Exposition, Cleveland, Ohio, Jan. 12 to 16, 1948.

National Cotton Council, tenth annual meeting, Biltmore Hotel, Atlanta, Ga., Jan. 21 to 23, 1948.

International Heating & Ventilating Exposition, Grand Central Palace, New York, Feb. 2 to 6, 1948.

Hosiery Industry Conference and Annual Meeting of NAHM, Claridge Hotel, Atlantic City, N. J., April 19 and 20, 1948.

International Exposition of Textile Machinery, Equipment & Supplies, 71st Regiment Armory, 34th St. and Park Ave., New York, May 3 to 7, 1948.

Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 4 to 9, 1948.

A Wage Increase. Completion of negotiations between Dan River Mills and the CIO Textile Workers Union and the granting of a 9% general wage increase set the pattern for southern textile mills. Shortly after the wage settlement, leading chain and group mill operators announced similar increases. The Cone group, Clark Thread Co., Erwin Cotton Mills, Borden Mills, Lowenstein Mills, Springs Mills, Spofford Cotton Mills, American Thread Co., Kendall Mills, Burlington Mills, Graniteville, and others fell in line. The union had asked for a 15¢ per hr. increase but was satisfied with the 9% which it is estimated raises the average to about $1.08 per hr. which on a job-for-job basis is said to be higher than in the North. During the last two years the union has sought to eliminate the North-South differential. For the most part the new contracts free the union from responsibility for unauthorized wildcat strikes and slowdowns. However, management received benefits in that any individual or group entering such unauthorized action forfeits rights under contract.

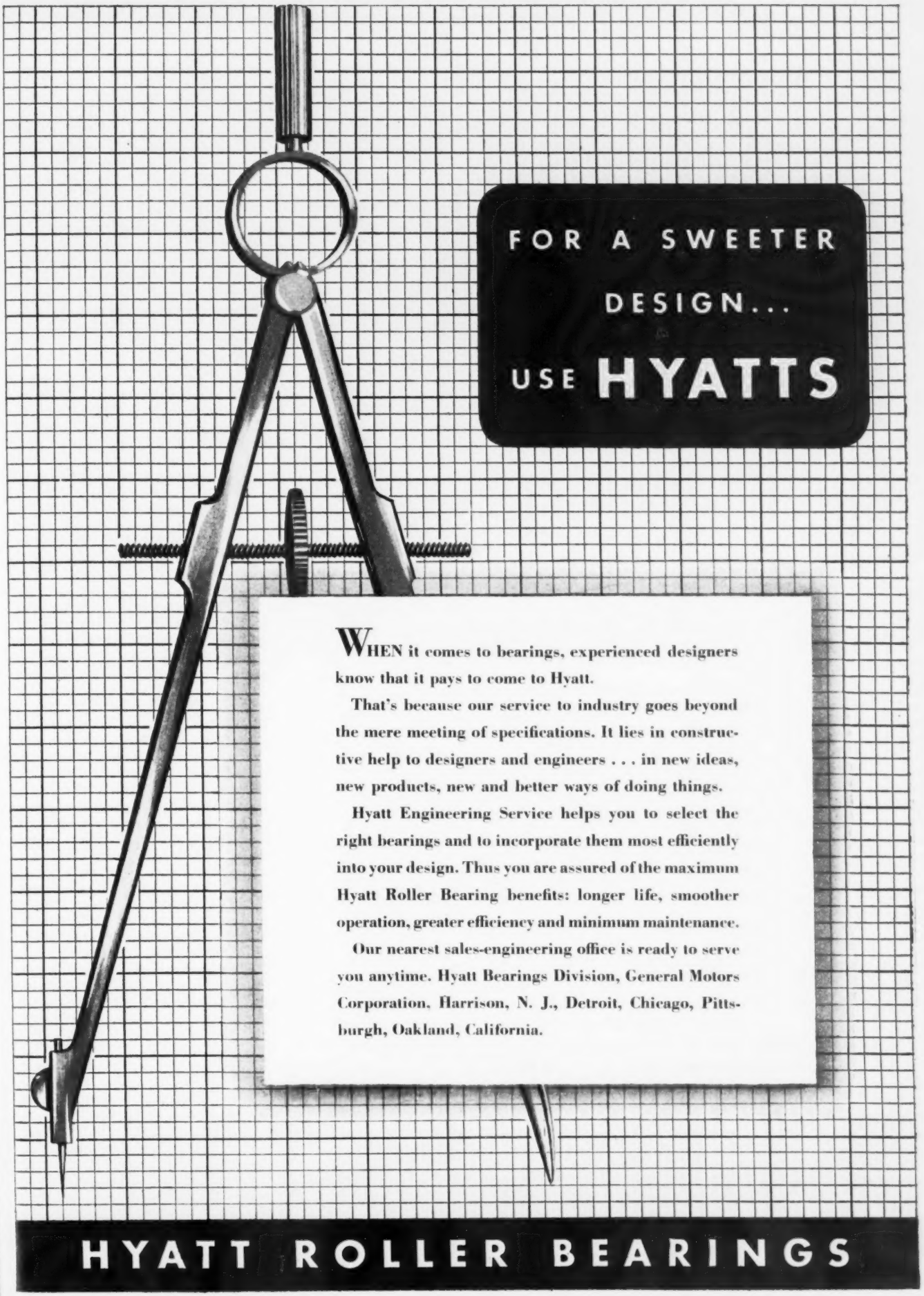
Non-Profit Organization for Callaway. Stockholders of Callaway Mills, LaGrange, Ga., have voted to liquidate all assets, dissolve, and receive an estimated $90 a share, or a total of $33,750,000. Operations of all the properties will be taken over by the Callaway Community Foundation, which will organize a new company known as Callaway Mills Co., a non-profit organization, for operation of the properties. There will be no change in the present Callaway personnel or operations. Result of the move is to give the Foundation a substantial source of annual income for use in community development and for the benefit of the employees and their families.

To Push Study of Cotton. Studies of the fundamental characteristics of cotton fiber with a view to finding entirely new uses for it have been authorized under the Research & Marketing Act of 1946, to be made by the U. S. Department of Agriculture. Six specific and new lines of work will be carried on: 1: Minute evaluation of the swelling of fibers when wet as a basis for selecting cottons for new types of protective fabrics. 2. A study of the changes that take place in the cellulose of cotton fiber upon oxidation with view to reduce or eliminate its adverse effects. 3. Investigation of chemically bonding cotton fiber with resins. 4. Improvement in elastic recovery by various chemical treatments. 5. Development of practical energy measurements for evaluating the merits of cotton in mechanical end-products such as tire cord, belting, etc.

6. Further development of dyeing as a means for estimating immaturity in cotton.

Coarser Wool Prices Cut. There was considerable activity in the Boston wool market during late October. On Oct. 24, Commodity Credit Corporation announced a drastic change in selling prices of medium wools and of fine wools. An advance of 1 to 2¢ was announced on the scarce fine staple territory wool and on choice delaine wool. Short fine wools were reduced as much as 4¢, clean basis. The bulk of ⅜ths and ¼-blood wools were reduced 9 to 13¢, clean basis, while off wools were reduced 10 to 30%. These reductions apply to 1946 and 1947 wools. Sale prices for 1943, 1944, and 1945 wools were reduced an additional 3¢. As a result of these changes in prices, a large weight of 1945, short, fine wools were sold both in Boston and Texas. Some of the average staple, fine, 1945 and earlier wools which had not been attractive to buyers were also purchased.

Licenses Wool-Shrinkage Process. A new process for controlling the shrink-



WHEN it comes to bearings, experienced designers know that it pays to come to Hyatt.

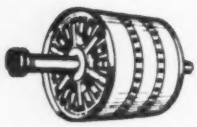
That's because our service to industry goes beyond the mere meeting of specifications. It lies in constructive help to designers and engineers . . . in new ideas, new products, new and better ways of doing things.

Hyatt Engineering Service helps you to select the right bearings and to incorporate them most efficiently into your design. Thus you are assured of the maximum Hyatt Roller Bearing benefits: longer life, smoother operation, greater efficiency and minimum maintenance.

Our nearest sales-engineering office is ready to serve you anytime. Hyatt Bearings Division, General Motors Corporation, Harrison, N. J., Detroit, Chicago, Pittsburgh, Oakland, California.

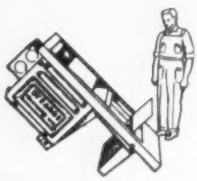
HYATT ROLLER BEARINGS

Stearns
MAGNETIC
EQUIPMENT



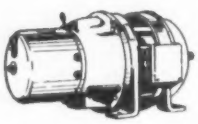
Stearns Magnetic Pulleys, air-cooled for more power. All sizes or complete separator units. Bulletin 301.

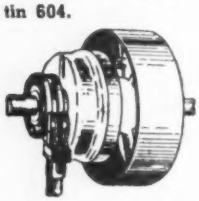
Stearns Suspended Separation Magnets, Bulletin 25, Lifting Magnets, Bulletin 35, all sizes and shapes.



Stearns Automatic Spout Magnets for catching tramp iron in your material flow. Bulletin 92.

Stearns Magnetic Disc Brakes stop over-running motors and machinery. Rugged and compact design. Bulletin 604.





Stearns Magnet Clutches and Clutch-Brake units for near or remote control on Machinery. Bulletin 225.

Investigate the Stearns Air Duct Magnet for collecting tramp iron as well as arresting flow of other non-magnetic objects found in cotton, wool, shoddy and other material, an effective, automatic strong magnet designed especially for the textile industry. We also manufacture permanent magnets that can be designed to fit into your flow. Consult our engineering department.

IF IT'S MAGNETIC
WE MAKE IT
PULLEYS · BRAKES
DRUMS · CLUTCHES
SEPARATORS · FILTERS
ORE CONCENTRATORS
SEPARATION OR LIFTING MAGNETS
Stearns MAGNETIC
MANUFACTURING CO.

646 So. 28th St. MILWAUKEE 4, WIS.

TEXTILE EXECUTIVES and civic officials joined with those of Georgia Tech at the recent ground-breaking ceremonies of the new $1,500,000 textile building which will give Tech one of the most modern textile schools in the country. Left to right: Prof. Harold Bush-Brown, of Bush-Brown, Gailey, & Heffernan, architects; Ray M. Lee, contractor; President Blake R. Van Leer, of Georgia Tech addressing the gathering; Acting-Governor M. E. Thompson of Georgia; Frank B. Williams, president of the Georgia Textile Education Foundation.

age of wool will be licensed and promoted in the United States and Canada by Cluett, Peabody & Co., Inc. Under the terms of the agreement, signed in New York with representatives of Wolsey, Ltd., and Stevenson (Dyers), Ltd., of England, the patent owners, Cluett, Peabody & Co., Inc. will grant licenses for the use of the process for both woven and knit goods.

Narrow Fabrics and Testing. Nearly 200 New England textile men braved a driving Rhode Island rain to attend a meeting of the New England ASTM District at Providence, Oct. 30. The textile-slanted program presented three men well known in their particular fields. Edwin J. Gibbons, of Eastern Tape & Webbing Co., an authority on woven and braided narrow fabrics, traced the history of narrow fabric manufacturing from its 1800-B.C. origin to the present and told of recent developments. Freeman W. Fraim of Essex Mills decried the dearth of literature on the subject of braided products, reviewed the contribution of the braiding industry to the war, and told of its present status. Prof. Edward R. Schwarz, Slater Laboratory, M.I.T., presented a slide-illustrated talk on new developments in textile testing.

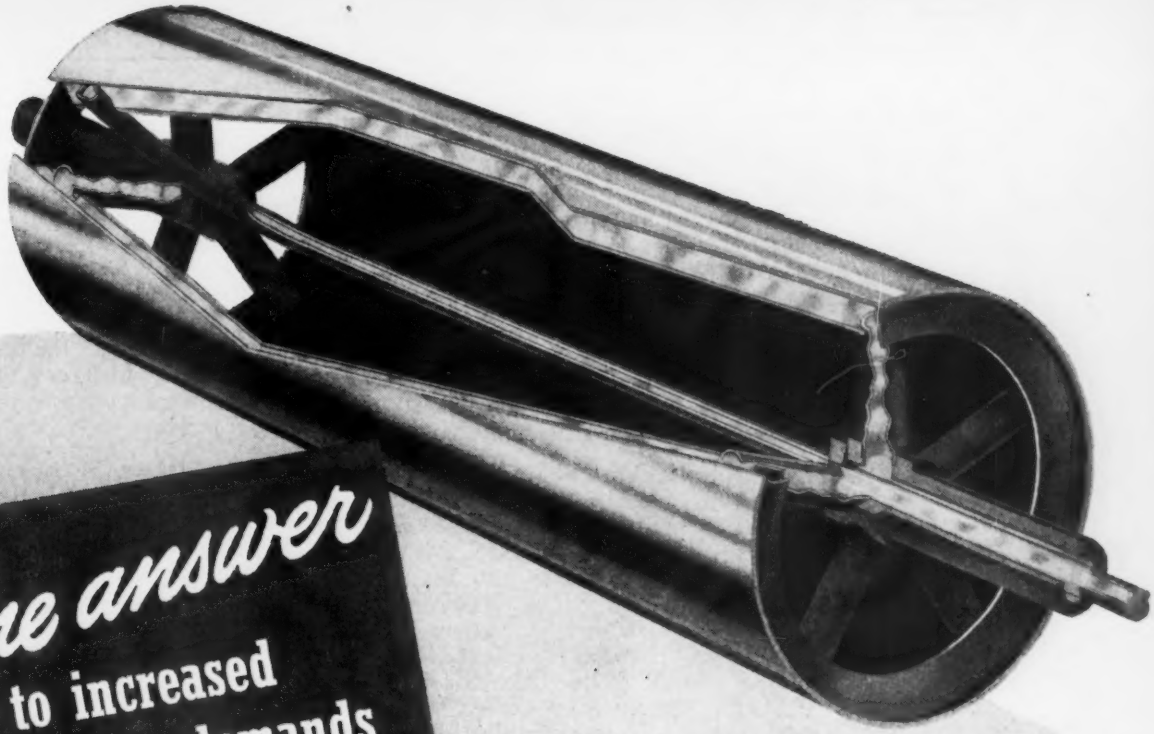
Conference for Rayon Converters. A trade practice conference for rayon and silk converters was held under the auspices of the Federal Trade Commission in New York Nov. 20. Federal Trade Commissioner Miller presided at the session. The conference was directed to the formulation and establishment, subject to commission approval, of a comprehensive set of fair-trade practice rules.

Cotton Council for Voluntary Flammable Standard. The National Cotton Council, Memphis, Tenn., is joining actively with other interested groups in working out voluntary standards for restricting the movement in interstate commerce of dangerously flammable goods. The major concern of the council, according to Dr. Leonard Smith, director of technical services, is that the restrictions do not affect fabrics unless they first actually possess a history of having been involved in accidents.

Research to Improve Wool. Research into ways to modify the characteristics of domestic wools, by both chemical and physical means, so that they may better meet competition from foreign wools and synthetic fibers, has been approved by E. A. Meyer, administrator of the Research & Marketing Act. The project will be carried out by the Bureau of Agricultural & Industrial Chemistry at its Western Regional Research Laboratory, Albany, Calif.

Fabric Donations Asked. Members of the American Cotton Manufacturers Association have been asked to donate approximately 4,000,000 sq. yd. of cotton cloth for relief of destitute women and children of Europe. The appeal came from Dr. William P. Jacobs, president of the association and by members of a special committee of the organization which has been working on the proposal.

Standardization of pH Scale. The pH unit is sometimes defined differently with slightly different values for the pH of a given solution. Several



One answer
to increased
production demands

Lukenweld Jacketed Drier Rolls

(Patents applied for)

"On the job" performance by Lukenweld *Jacketed* Drier Rolls in a wide range of industries proves their ability for faster, more efficient drying. Numerous installations show drying rate stepped up 15 to 25 per cent with no increase in steam pressure. When steam pressures were increased, drying rates were stepped up as much as 50 per cent. *That means increased output* to answer demands for greater production.

The double-shell design and welded steel plate construction of Lukenweld Jacketed Drier Rolls give these advantages: *Greater steam velocity* . . . steam is guided into the restricted area between inner and outer shell, resulting in *vastly improved heat transfer* properties. *Quick, positive condensate removal* . . . removal pipe revolves with the roll, taking out a definite amount of condensate and entrapped air with every revolution. High strength of rolled steel plate permits *safe operation at pressure of 350 psi and higher* . . . provides high dimensional stability.

Get the complete story about Lukenweld Jacketed Drier Rolls. Write for Bulletin 358. Lukenweld, Division of Lukens Steel Company, 406 Lukens Building, Coatesville, Pa.

Sizes from 2 feet to 18 feet O. D. and over

LUKENS
LUKENWELD DIVISION

LUKENWELD

DRIER ROLLS AND DRYING MACHINERY

Acetate Yarn
DYEING

Accurate skein dyeing of Acetate yarns under laboratory control.

- **FAST COLORS**
- **EXACT MATCHES**
- **QUICK DELIVERY**

For good service and exact color matching write, phone or wire —

JOHNSON & HARDT, Inc.
Phone: Sherwood 2-6085
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Weave Mills that require

JUTE, SISAL or COIR FILLING

Rely On

LAZENBY WINDERS

Cops of extreme diameter and length, of maximum yardage and uniformity, are readily produced on LAZENBY equipment.

Send us a small supply of your yarn and we will wind and return with Testwind Report and Catalog.

F. A. LAZENBY & CO.
3106 Elm Ave.
Baltimore 11 Md.

pH scales, based upon the various definitions, have met with equal favor among chemists. In view of the increasing need in science and industry for accurate determinations of acidity and alkalinity, the National Bureau of Standards is recommending the universal adaption of a single standard pH scale, analogous to the International Temperature Scale. It is proposed that the pH assigned to solutions of buffer substances distributed by the bureau as standard samples be taken as the fixed points on this standard scale.

Identifies El Paso Cotton. All cotton from the El Paso-New Mexico District, known to the trade as "El Paso Territory," or 1517, this season has markers inside each bale identifying it as being from this territory. The local farmers, ginners, and merchants are proud of their product. They have found that this cotton has previously been delivered against contracts calling for other cotton and they wish it to be judged on its own merits.

Cottons and Wools Get Style Prominence. At the broadly inclusive style show staged for the trade only by the New *York Times* on Oct. 28 to 31, important places were held by cotton and wool fabrics. Glazed chintz appeared as a formal dress material and striking new prints on other materials were featured. Photographic prints vied with hand-painted fabrics and screen prints. A new color, "Amberlight," a golden yellow in several shades, were launched.

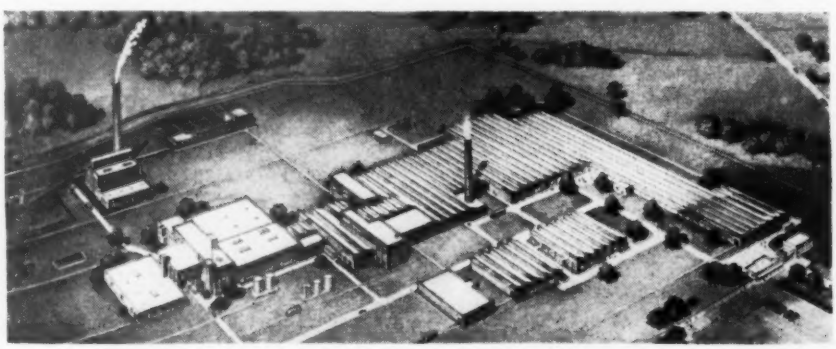
Deans Meet. The three-day semiannual conference of the National Council of Textile School Deans was held at Sanford, Me., in mid-October. The members were guests of officials of Goodall-Sanford, Inc. There were informative panel discussions of such subjects as better and more useful textile school graduates, new courses, changes in curricula, public relations, etc.

Crimped Viscose Staple. A new crimped rayon staple, which will provide improved texture and appearance for certain types of fabrics, has been developed by American Viscose Corp. Described as the first crimped viscose staple developed, the new product can be used by itself, or it can be blended with wool, cotton, or other types of rayon fibers.

Thread Men Meet. The Thread Institute, Inc., held its annual meeting in New York, Oct. 21. J. W. Oliver, secretary and comptroller of the Linen Thread Co. spoke on "Taxation, a Management Problem." Other speakers covered the outlook and the world economic situation.

New Fire-Retardent Plexon. A new yarn to meet demand for fire-retardent decorative fabrics, upholstery, and draperies has been offered by Plexon, Inc., New York. Forty-five colors are available in sizes ranging from 0.007 to 0.030 in. in diameter. Automobile seat coverings woven of the new Plexon are already in production.

Second Campaign for N. E. Foundation. The second fund raising campaign of New England Textile Foundation, Providence, R. I., opened on October 28, when a luncheon meeting was held for the division chairmen and campaign committee members at the Hotel Statler in Boston. Abbot Stevens, treasurer of M. T. Stevens & Sons Co. Div. of J. P. Stevens & Co., Inc., who is general campaign chairman, presided. The heads of the four textile schools spoke on the benefits they have derived from the foundation, while George T. Metcalf, executive secretary, explained campaign plans.



TENNESSEE'S LARGEST new postwar industrial development is said to be this new rayon-yarn plant, now under construction at Lowland, near Morristown, for American Enka Corp. To cost approximately $25,000,000, the plant is being designed, built, and equipped by The H. K. Ferguson Co., Cleveland. Located on a 700-acre site, American Enka's new facilities will produce 20,000,000 lb. of rayon yarn annually, with provisions for the immediate addition of 2,000,000 lb. of other rayon yarn. It is expected to be in operation by the end of this year and will offer employment for 1,000 to 1,500 people.

Lanese*

is an important factor in market acceptability of spun fabrics

Lanese... trademark for Celanese* cellulose acetate staple fiber ...contributes factors responsible for the fast-growing market acceptance of blends. Many new and saleable weaves result when Lanese in dominant proportions is combined with cotton, wool or viscose process rayon fibers.

A high content of Lanese also insures a cloth with a pleasing hand, excellent drapability and dimensional stability. The soil-resistant, quick-drying and easy-cleaning properties of Lanese are well known.

POINTERS TO LANESE

Exceptional price stability—avoids need for hedging
Appreciably less waste—quality scientifically controlled
Staple lengths uniform from bale to bale—no off-grades
Continuity of supply makes long-range inventories unnecessary
Scientifically controlled crimp
Greater dimensional stability

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SYNTHETIC STAPLE FIBER

*Reg. U. S. Pat. Off.

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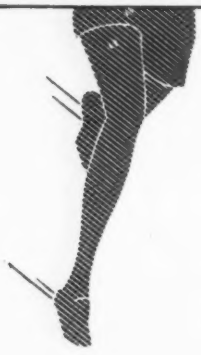
For a Finish that takes the Prize



DESIZE with EXSIZE

SCIENTIFIC TESTS demonstrate that this concentrate of natural enzymes will desize hundreds of yards of cotton or cotton mixed cloth for only a few pennies.

More important, however, is the fact that Exsize can successfully tackle the toughest finishing job leaving fabrics supple, elastic, soft . . . with a good "hand." Yes, Exsize is consistently uniform and dependable.

Why not have our Pabst Technical man check with you on your desizing problems. He'll be delighted to help you solve them either in our laboratories or your own mill.

WRITE FOR FREE BOOKLET

PABST BREWERIES

PABST SALES COMPANY

CHICAGO, ILLINOIS

Warehouses at Jersey City, and Textile Warehouse Company, Greenville, S. C.

Copr. 1947, Pabst Brewing Company, Milwaukee, Wisconsin

NEWS ABOUT Suppliers

H. W. Butterworth & Sons Co., Philadelphia, is in the process of enlarging its plant facilities at Bethayres, Pa. Begun a year ago, this modernization and expansion program is designed to cut the firm's backlog of textile-machinery orders. The enlarged machine shop is expected to be in use by Jan. 1 for machining castings and crating finished equipment for export. Built directly onto the foundry buildings, this is a one-story, 180x90 ft. structure which will create employment for 75 more machinists and other shop help. Rearrangement of the stock-storage department is included in the expansion program. In addition, 30 standard machine tools have been bought and three special machine tools which were designed by Butterworth engineers. Future plans call for enlarging the factory itself. Cost of new buildings and installation of new machines and equipment on this 22-acre tract at Bethayres will amount to more than $225,000.

Riggs & Lombard, Inc., Lowell, Mass., has appointed Charles H. Dunker as West Coast representative. Mr. Dunker, whose present address is 701 7th St., Coronado, Calif., will have exclusive sales rights of the Riggs & Lombard "Fleet Line" of textile-finishing equipment in California, Oregon, Washington, and British Columbia.

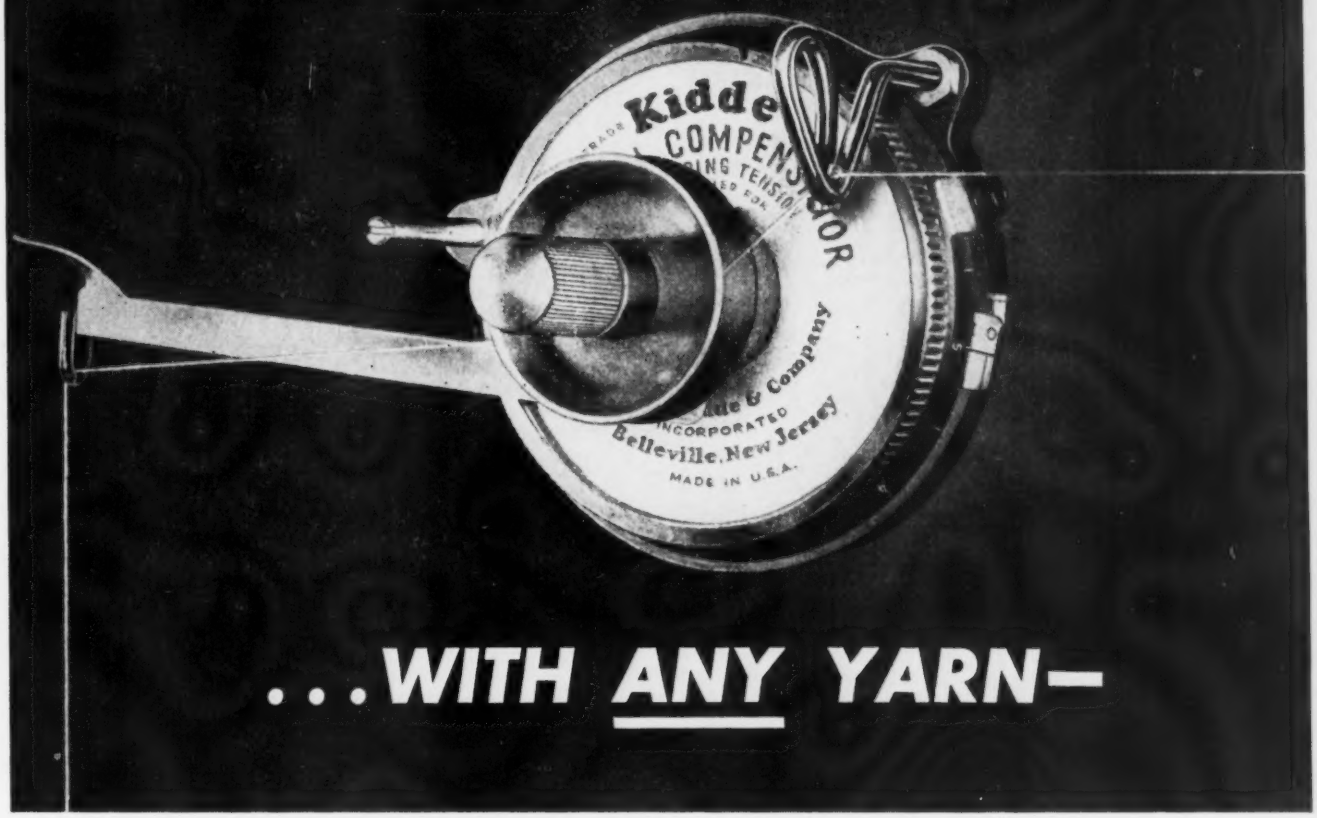
Willcox & Gibbs Sewing Machine Co., New York—Alban Holmes, managing director of Willcox & Gibbs Sewing Machine Co., Ltd., London, Eng., and Gilbert Summers, chief engineer and a director of the same company, have been visiting the United States. Their itinerary called for visits to some of the Willcox & Gibbs district offices and to customers in the various territories.

Universal Winding Co., Providence, R. I., has elected C. Foster Harry as vice president in charge of manufacturing. He was formerly an engineering field supervisor for Rath & Strong, Inc. The strike, which has been current for some weeks at the Cranston plant, was virtually ended when the union voted on Oct. 14 to return to work on Oct. 20. The company's annual report states that on return to normal operation the company hopes to step up machinery shipments to an approximate monthly total of $1,350,000.

JOHN DRAPER GANNETT has been elected advertising manager of Draper Corp., Hopedale, Mass., to succeed the late S. Walter Batty. He is a member of the fifth generation of Drapers connected with the business since its beginning in 1816. He was in the employ of Spartan Mills at Spartanburg, S. C., for about a year, and joined the Draper organization in March, 1936. From 1942 to 1946, he was in the army and returned to Draper last year.

Makepeace, Desmond & Watson, Inc., a New England company, has been formed by Watson & Desmond, Charlotte, N. C. The new firm will have offices at Warwick Neck, R. I., and represent several textile-supply manufacturers in New England, New York, and New Jersey. Incorporators include Roderick F. Makepeace, S. P. V. Desmond, and Clifton E. Watson. Mr. Makepeace has been associated with U. S. Bobbin & Shuttle Co. for the last 16 yr. Previous to that, he

NOW—constant yarn tension...



...WITH ANY YARN—

THE *KIDDE* TENSION COMPENSATOR

automatically maintains constant output tension —at any desired value from 15 to 120 grams— regardless of changes in yarn coefficient of friction, input tension, yarn speed, or variations in mill temperature and humidity.

Just set the calibrated dial of the Compensator —lock it in position—and the ball-bearing compensating disc will keep tension constant. In months of actual mill tests on all types of yarns, greatest variation from set tension was only 2 grams!

The *Kidde* Compensator is precision built for accurate, lasting performance. Heat-treated stainless steel balls give friction-free compensation. Guide most subject to wear is made of sapphire. Calibrating tension spring is fatigue-resisting beryllium copper.

The word "Kidde" and the Kidde seal are trade-marks of Walter Kidde & Company, Inc.

REPRESENTATIVE APPLICATIONS

of the *Kidde* Tension Compensator include:

1. Filling Winding. Number of shiners and shell-offs is cut down, boosting loom efficiency. More yarn can be wound on bobbin—delicate yarns can be wound at higher speeds.

2. Plying of coarse yarns. Compensator permits magazine creeling—prevents corkscrews or uneven plying.

3. Rubber Warping. Compensator can be set to take out all of the stretch.

MAIL THE COUPON *for full details*

Walter Kidde & Company, Inc.
1291 Main Street, Belleville 9, N. J.
Gentlemen:

Please send me information on the *Kidde* Tension Compensator.

Name.....
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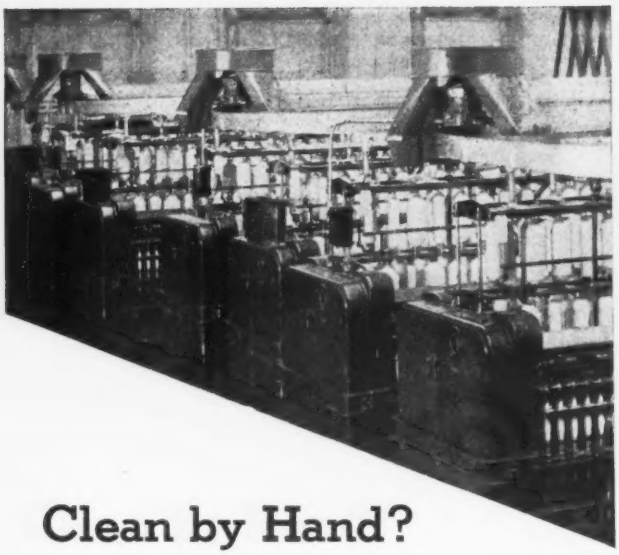
City..... Zone No. .... State.....

Walter Kidde & Company, Inc., 1291 Main Street, Belleville 9, N. J.



Clean by Hand? Why Not?

Might be better. Rigged with ParksTurbo Traveling Cleaners, frames are blown off every three or four minutes.

Lint and fly are blown away before they have a chance to collect and to be spun into the yarn.

Hand cleaning, done as often or as regularly, might be better. But what spinner would want to fan a bunch of frames by hand fifteen or twenty times an hour? Or who would want her to?

ParksTurbo Traveling Cleaners take the drudgery out of spinners' work—and earn their keep besides.

Parks-Cramer Company

Fitchburg, Mass. **Charlotte, N. C.**

ParksTurbo Traveling Cleaners cost nothing. Pay for themselves so soon.

ROBACZYNSKI MACHINE CO., Brooklyn, N. Y., was recently visited by Prince Carl Bernadotte of Sweden, who is chairman of the board of directors of Sviex America, Inc., a world-wide distributing concern which is seeking to represent Robaczynski Machine Co. in some parts of the world. The prince is shown above at the side of the company's new tricot machine which he is inspecting. Mr. Robaczynski and his executives are demonstrating the machine.

was with Nashawena Mills, Hamilton Mfg. Co., and Lonsdale Co. Mr. Desmond was a southern representative for Crompton & Knowles Loom Works for 18 yr. before the organization of Watson & Desmond last year. Mr. Watson was vice president and general manager of Watson-Williams Mfg. Co., Millbury, Conn., from 1922 to 1940, at which time he became southern sales manager for the Emmons Loom Harness Co. During the war, he served with the WPB as chief of the textile-mill maintenance section and later as chief of the textile machinery branch.

A. Maurer Corp., 3254 Lincoln Ave., Chicago, Ill., has been formed by Ing. A. Maurer S.A., of Berne, Switzerland, and Maurer's North American representative, U. S. Engineering & Mfg. Co. The new firm will make in this country, as well as import, the rayon manufacturing machinery for which it has been known. It will also supply equipment for manufacture of transparent paper, films, and polyvinyl chloride. Officers are P. A. Nikles, president, and Dr. Robert Steiger, vice president, representing Maurer of Berne; and John H. Romann, secretary-treasurer and executive officer in the U. S., who represents the U. S. Engineering & Mfg. Co.

Chas. T. Main, Inc., Boston, has consolidated its offices in new and larger quarters on the 15th floor of 80 Federal St.

Textile Hall Corp., Greenville, S. C., is perfecting plans for the 15th Southern Textile Exposition to be held Oct. 4 to 9, 1948. The prospectus was issued in August. More than 100 applications for space have been received. Arrangements for housing exhibitors and visitors are being made for the coming event. The Greenville Chamber of Commerce and civic societies are cooperating.

Calco Chemical Div., American Cyanamid Co., Bound Brook, N. J., has appointed Dr. Robert S. Long as an assistant director of the organic section of its research department. Dr. Long joined Calco in 1940. He has lately been an assistant chief chemist in the organic section.

American Cyanamid Co., Textile Resin Dept., Bound Brook, N. J., has appointed S. P. Young as technical field representative. He will work under direction of R. W. Angstadt, southern sales manager in charge of the firm's Charlotte, N. C., office.

General Chemical Co. has appointed Hans S. Blum to its sales staff. Mr. Blum, who has been with Hercules Powder Co. for 17 yr., will continue his sales work in the Southeast, with headquarters in Atlanta, Ga. General Chemical recently purchased the East Point, Ga., and the Marerro, La., plants of Hercules Powder Co., both producers of alum.

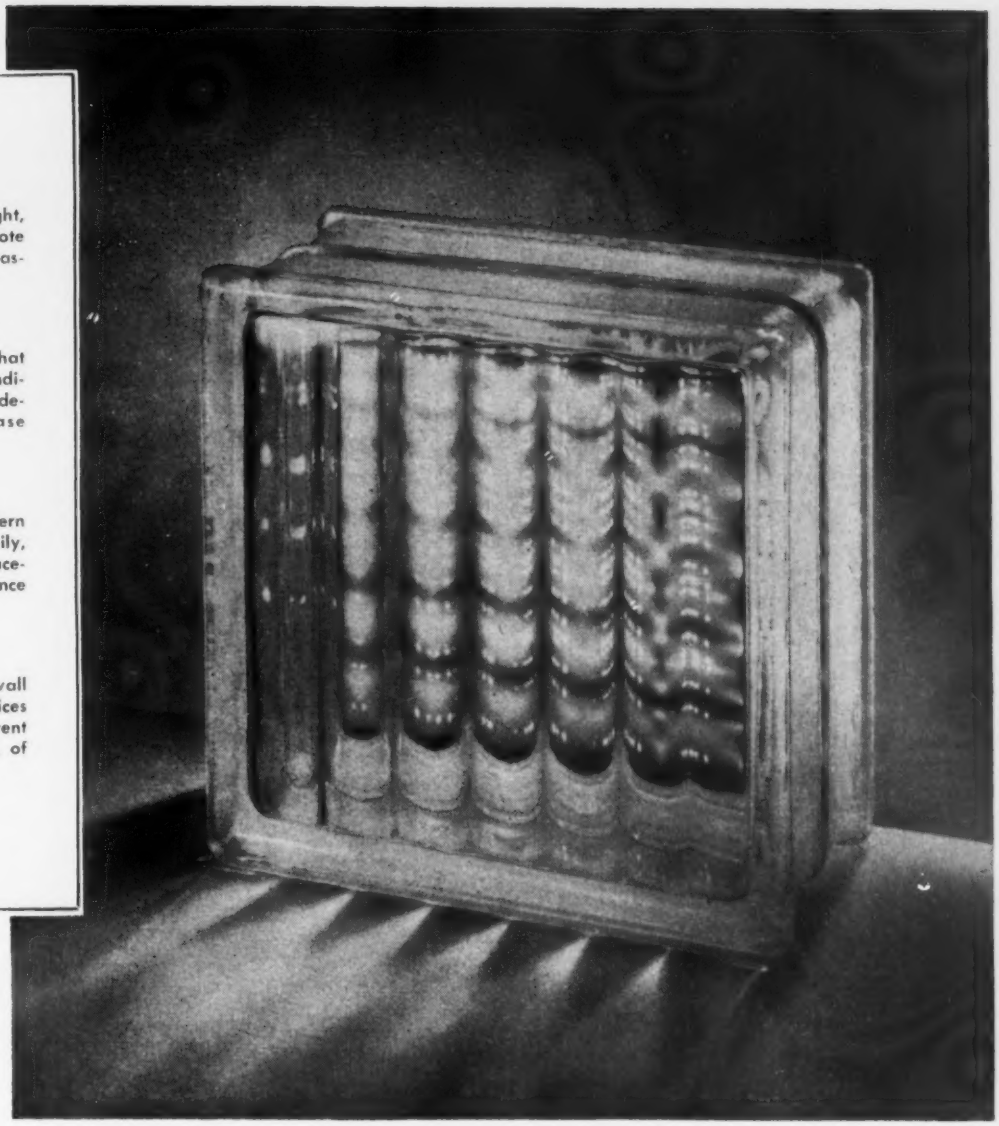
American Key Products, Inc., New York, distributors

PC GLASS BLOCKS
provide ample, diffused daylight, which can be directed to remote working areas, thereby increasing usable floor space.

PC GLASS BLOCKS
possess insulating qualities that reduce heating and air-conditioning costs, help maintain desired temperatures, decrease condensation

PC GLASS BLOCKS
give any mill a neat, modern appearance. They clean easily, rarely need repairs or replacement, help reduce maintenance costs.

PC GLASS BLOCKS
form a solid, translucent wall which insures privacy for offices and work rooms. They prevent infiltration of chilling drafts, of harmful dust and grit.



One building material gives you all these advantages

● Mill superintendents who have installed PC Glass Blocks can tell you that they improve the appearance of the mill, set new high standards of efficiency, hold operating costs down to new lows. Whether you are planning for new buildings or for a modernizing program, be sure you have the latest information on PC Glass Blocks. Why not send the coupon today for our recent booklet? No obligation. Pittsburgh Corning Corporation also makes PC Foamglas Insulation.

PC GLASS BLOCKS...the mark of a modern building

PITTSBURGH PC CORNING ® GLASS BLOCKS

Distributed by PITTSBURGH PLATE GLASS COMPANY
by W. P. Fuller & Co. on the Pacific Coast and by Hobbs Glass Ltd. in Canada

FOR ADDITIONAL INFORMATION SEE OUR INSERTS IN SWEET'S CATALOGS

Pittsburgh Corning Corporation
Room 694, 632 Duquesne Way, Pittsburgh 22, Pa.
Please send along my free copy of your new book on the use of PC Glass Blocks for Industrial Buildings. It is understood that I incur no obligation.

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Address.....

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COMMONWEALTH
COLOR & CHEMICAL CO.

More than thirty years' experience in the manufacture of Chemical Specialties, Dyestuffs and Dyewoods for the Textile and Allied Trades

MAIN OFFICE AND WORKS:
NEVINS, BUTLER and BALTIC STS., BROOKLYN 17, N.Y.
PHILADELPHIA — CHICAGO
GLOVERSVILLE — MONTREAL

of domestic and imported starches, has formed a specialties department to handle the sale of dextrines, glues, gelatins, natural gums, casein, and related products. John A. Lowander, a former vice president of Stein Hall & Co., New York, with which he was connected for 24 yr., will manage the new division.

Paisley Products, Inc., Chicago, has appointed Percy P. Morningstar as manager of its New England branch with headquarters at 79 Milk St., Boston. Sam Stewart has been named to direct the Paisley branch at 15th and Market St., Philadelphia.

Solvay Sales Corp., New York, has appointed assistant branch managers as follows: A. B. Kennedy at Detroit; K. M. Dillabough at Philadelphia; J. H. Kaiser at Syracuse.

Columbia Chemical Div. of Pittsburgh Plate Glass Co., Pittsburgh, Pa., has appointed William L. Platt as Boston district sales manager. He joined the firm's glass division in 1927 and 3 yr. later transferred to the Columbia Chemical Div.

Monsanto Chemical Co., St. Louis, Mo., is constructing a new unit to produce formaldehyde for expanded output of plastic resins by the company's Plastics Div. at Springfield, Mass. Construction is expected to be completed in the second quarter of 1948. Milton Welhoelter has been appointed assistant manager of the design section of Monsanto's general engineering department, and Robert E. Wright was appointed assistant to the section manager. The company has established a department of economic research and appointed William H. Winfield as its manager. Dr. James H. Lum, former executive director for Monsanto at Clinton Laboratories, Oak Ridge, Tenn., has left for Melbourne, Australia, to become managing director of Monsanto (Australia) Pty., Ltd., with plants at Melbourne and Brisbane.

Philadelphia Quartz Co., Philadelphia, Pa., has appointed Kenneth B. King to its sales staff. He will assume sales duties in the North Carolina-South Carolina area with headquarters in Charlotte.

Pennsylvania Salt Mfg. Co., Philadelphia, has added William M. Lee to its Research & Development Dept. as supervisor of the Special Products Div.

***AUGUST MERZ**, venerable dean of Cyanamid employees, completed 50 yr. of service with American Cyanamid Co. and its affiliates on Oct. 12. Industrialist, chemist, and public-spirited citizen, Mr. Merz, at 74, is looking forward to continued service with the company in his capacity as research adviser and consultant. In 1897, Mr. Merz started his long career when he joined Heller & Merz, a partnership formed in the late 60's by his father, Henry Merz, and his uncle, Frederick Heller, the first to manufacture ultramarine blue in this country. Mr. Merz, who started as an assistant chemist, saw the plant grow from a small manufacturing unit to a successful producer of such dyestuffs as methyl violet, fuchsine, eosine, nigrosine, rosaniline blue, malachite green, and a line of azo dyes useful particularly in the paper trade and in the paint trade. In 1929, Heller & Merz was purchased by American Cyanamid Co., and, when in 1930 operation was assumed by Calco, Mr. Merz was made a vice president of Calco. He was president of the Synthetic Organic Chemical Manufacturers Association from 1926 to 1946.*

The Permutit Co., New York, has appointed Austin F. McCormack, as sales engineer in charge of the firm's newly established Rochester office which replaces the one formerly located in Syracuse and now closed. This branch was directed by F. D. West, veteran sales engineer, who is retiring after 29 years of service.

Fifth National Chemical Exposition has been scheduled by the Chicago Section of American Chemical Society for Oct. 12 to 16, 1948, at the Chicago Coliseum. Marcus W. Hinson has been engaged again

NON-FLUID OIL

TRADE MARK REGISTERED

STAYS

ALIVE

L-O-N-G-E-R

TESTS prove that NON-FLUID OIL stays "alive" longer than lubricating greases when used on ball and roller bearings. This is due to the unique process by which NON-FLUID OIL is made, and through which it acquires greater stability and higher protective properties than can possibly be afforded by grease lubrication. Even greases which do not dry out or harden after a period of time, actually become "dead" and have little lubricating qualities.

We invite you to send for testing samples which will prove our claim that NON-FLUID OIL stays "alive" l-o-n-g-e-r, outlasting ordinary lubricants 3 to 5 times.

WAREHOUSES:
Charlotte, N. C. • Greenville, S. C. • Atlanta, Ga.
Providence, R. I. • Detroit, Mich. • Chicago, Ill.
St. Louis, Mo.

WORKS:
Newark, N. J.

Southern District Manager
FALLS L. THOMASON
Charlotte, N. C.

N. Y. & N. J. Lubricant Co., Dept. TW
292 Madison Avenue, New York 17, N. Y.

Please send testing sample of NON-FLIUD OIL to be used in the following machinery:

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Name .....
Company .....
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City..... State.....

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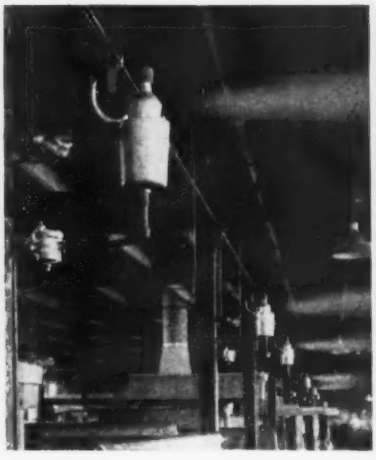
LUBRICANT CO.
292 MADISON AVENUE, NEW YORK 17, N.Y.

For Maximum Production



Check Your RELATIVE HUMIDITY

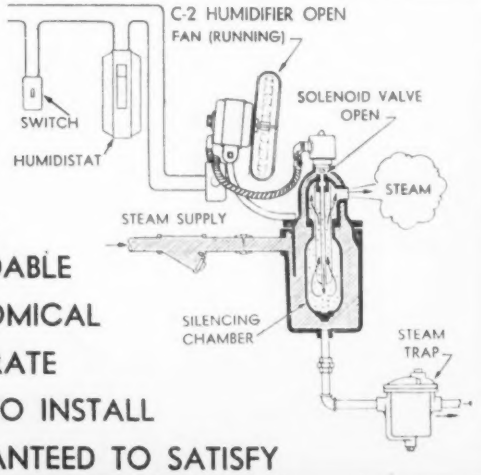
YOU ARE LOSING MONEY if the relative humidity in your plant is below what it should be. You can't maintain top production when textile fibres are dry and brittle. You lose in other ways, too. Employee efficiency is lowered, susceptibility to colds increases. Paperboard containers dry out, crack at the creases. Static electricity sparks create a fire or explosion hazard if volatile liquids are present.

More and more mills are eliminating these losses with Armstrong Steam Humidifiers. Completely automatic, trouble-free, they can be hooked into existing steam and electrical systems with no building alterations. Operating costs are less than a penny per day per 1000 cu. ft. Dry steam is dispersed directly into the atmosphere—there's nothing comparable on the market. ASK FOR BULLETIN 177 giving complete data. ARMSTRONG MACHINE WORKS, 872 Maple St., Three Rivers, Mich.

HERE'S WHAT IT SHOULD BE:

Industry and Process	Relative Humidity Per Cent
Textile—Cotton	
Combing	60 to 65
Weaving	85
Textile—Rayon	
Spinning	85
Textile—Silk	
Dressing	60 to 65
Throwing	65 to 70
Textile—Wool	
Carding	65 to 70
Weaving	50 to 55
Textile—	
Testing Laboratory	65

HERE'S THE ANSWER WHEN AIR IS TOO DRY



SIMPLE
DEPENDABLE
ECONOMICAL
ACCURATE
EASY TO INSTALL
GUARANTEED TO SATISFY

ARMSTRONG *Steam* HUMIDIFIERS
Easy to Install and Maintain . . . Automatic . . . Economical

Made by the Makers of Armstrong Steam Traps

to manager the details of the exposition.

Allis-Chalmers Mfg. Co., Milwaukee, has organized a fifth region for the field organization of its general machinery division under Arch J. Cooper, New York district office manager. Formation of the first four regions to be established under the company's long-range sales plan was reported earlier this year.

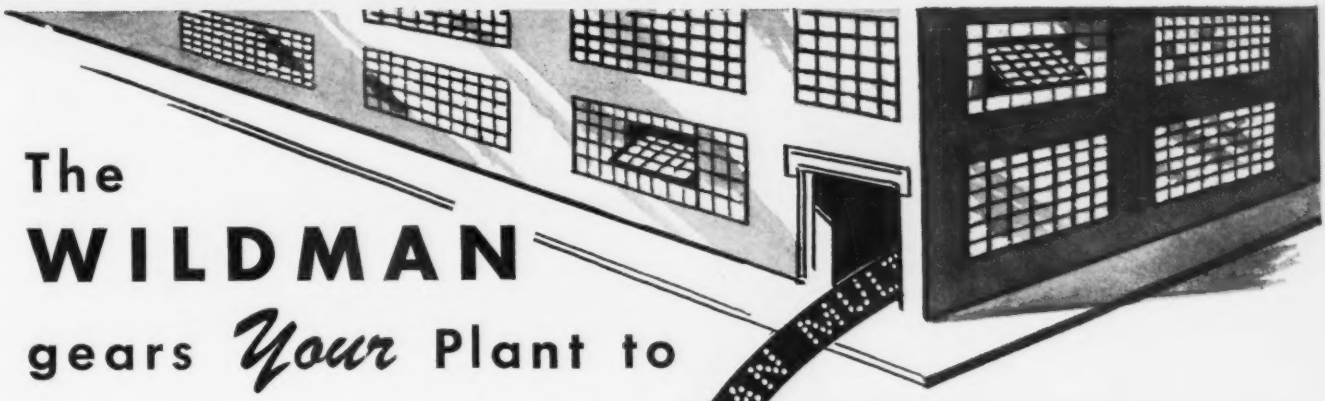
James F. Lincoln Arc Welding Foundation, Cleveland, Ohio, has announced the awards in its $200,000 Design-For-Progress Program. The 467 awards range from $100 for honorable mention to $13,200 for the main award. The first main award of $13,200 was divided among Paul F. Hackethal, chief engineer; Clarence C. Mast, shop superintendent; and Douglas W. Hamilton, welding foreman; all of the Koppers Co., Baltimore, Md., for their co-authorship of a paper entered in the aircraft classification. The second main award of $10,700 was awarded to Kiser E. Dumbauld, design engineer, of Bureau of Bridges of Ohio State Highway Dept., for his paper in the structural building and bridges classification. The third award of $8,200 went to G. J. Staratz, engineer-in-charge, the Heil Co., Milwaukee, Wis., in the industry machinery classification. In the textile group, C. S. Stearn, Horscroft & Co., Victoria, Australia, received first mention with $700 for design of a welded knit-goods press. Second place and $500 went to W. C. Redeen, Phoenix Hosiery Co., Milwaukee, for construction of line-shafts serving a knitting room. Third place and $250 went to B. D. Morgan of Johnson & Johnson, New Brunswick, N. J., for a cloth re-winding machine.

***FREDERICK C. WEICKER** has been appointed sales manager of the Tolhurst Centrifugals Div. of American Machine & Metals, Inc., East Moline, Ill. Since 1939, Mr. Weicker has been eastern district sales manager for Tolhurst. In his new position as national sales manager, he will make his headquarters at the company's plant in East Moline.*

***PHILIP F. BROWN** has been appointed by E. I. du Pont de Nemours & Co., Wilmington, Del., to succeed Frederick R. Brown who is retiring after having directed the sale of Du Pont's viscose-process rayon yarns and associated products for the last 19 yr. Philip Brown, no relation to Frederick, has been assistant director of sales since 1935. V. Ward Smith, district sales manager of the Rayon Div. at Providence, R. I., will succeed Philip Brown as assistant director of sales; and W. D. R. Straughn, manager of tire yarn sales, will replace Mr. Smith as district sales manager at Providence. F. R. Brown, who has been associated with the textile industry since 1906, joined Du Pont in 1928 as director of sales of the Rayon Dept. of Du Pont Rayon Co.*

Processing Oils & Chemicals Association held its 16th annual meeting at Hotel Claridge, Atlantic City, N. J., Oct. 16 and 17. J. Everett Allen, of Arkansas Co., was elected president; J. M. McChesney, of Leatex Chemical Co., vice president; and H. B. Sweatt, secretary-treasurer. The outgoing president was Harold B. Dohner.

Air Reduction Sales Co., New York, has appointed Harold Reed, formerly assistant manager of its New York Metropolitan district, to be manager of that district. He succeeds W. S. Schoenthaler, who is retiring after 37 yr. of continuous service. Oren M. Donohue, formerly assistant sales manager, has been appointed assistant manager, succeeding Mr. Reed.



The WILDMAN gears *Your* Plant to MODERN Production!

WILDMAN MULTIPLE FEED RIB MACHINE—WILDMAN MULTIPLE FEED RIB MACHINE—

Leading knitting mills throughout the United States are enjoying the many exclusive mechanical advantages of this WILDMAN MULTIPLE-FEED RIB MACHINE. These advantages are reflected in greatly increased volume, more and better patterns, marked product improvements, etc. For example:

Doubles Production

or better. This is the invariable rule when a WILDMAN with its 16 or more feeds replaces the ordinary 8-feed machine on exactly the same floor space.

Multiplies Style Range

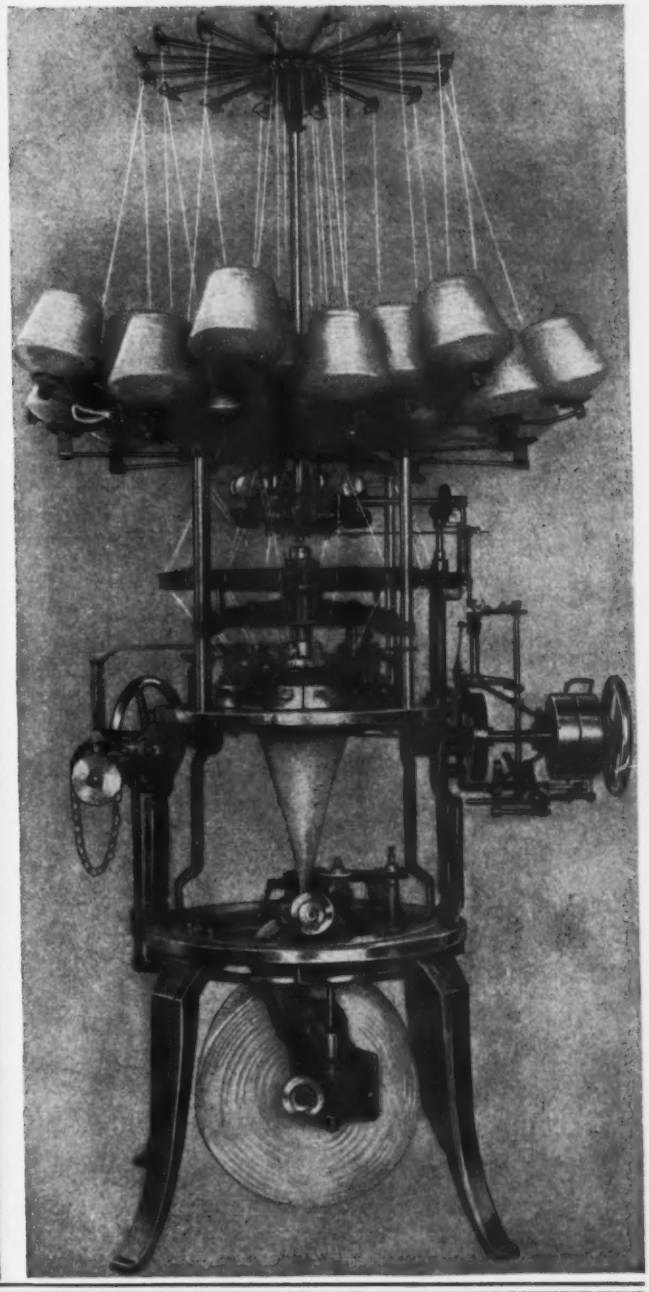
offering a much greater opportunity for pattern design in sports wear and all other knitted garments.

Stabilizes Garment Sizes

Feeding the yarn under absolutely even tension, uniformity in garment sizes is easy. The ability to tie cone to cone without stopping machine is another WILDMAN feature.

There are many other interesting operational advantages that we'd like to tell you about.

WILDMAN MFG. CO., Norristown, Pa.



NEWS ABOUT Mills

Cotton Mill News

Baker Mills, Inc., Gastonia, N. C.—French Campbell, Jr., of Charlotte, N. C., has been named permanent receiver of mills. He has been taking bids for sale of the plants at Gastonia and Clover, S. C.

Carlton Yarn Mills, Inc., Cherryville, N. C., will construct one-story addition at estimated cost of $50,000, exclusive of machinery.

Carthage Weaving Co., Carthage, N. C., which during the war manufactured camouflage nets for the government, and since then has been closed, reopened last week. Van B. Sharpe and Mrs. Louis Sharpe, of Pinehurst, N. C., are owners.

Dominion Textile Co., Ltd., Montreal, Que., has let contract to J. L. E. Price & Co., Ltd., Montreal, for two five-story and two two-story additions. Cost reported over $100,000, exclusive of equipment.

Fulton Bag & Cotton Mills, Atlanta, Ga., has let contract to Independent Construction Co., Atlanta, for three warehouses to cost about $215,000.

Grace Cotton Mills Co., Rutherfordton, N. C., a subsidiary of Reeves Brothers, Inc., has installed Barber-Colman spooling and warping equipment.

Kilburn Mills, New Bedford, Mass., has taken bids for a receiving building 50x50 ft., and a loading platform 230x20 ft. Westcott & Mapes, New Haven, Conn., drew plans.

M. Lowenstein & Sons, Inc., New York, N. Y., in order to increase its print-cloth supply facilities, has purchased Hamrick Mills, Inc., and Limestone Mills, Inc., Gaffney, S. C.

Marshall Cotton Mills, Inc., Marshall, N. C., formerly known as Virgin Mills until its purchase about three weeks ago by Leading Embroidery Co., North Bergen, N. J., has acquired services of Werner Textile Consultants, Inc., New York, N. Y., in connection with its conversion into combed yarn mill. W. Ross is now superintendent.

Monarch Mills, Inc., Union S. C., has low bid from Danie Construction Co., Greenville, S. C., for alterations and improvements in mill.

Morowebb Cotton Mills Co., Dallas, N. C., has been sold to Max Schiffman, New York, N. Y. No personnel or production schedule changes are contemplated.

Morgan Cotton Mills, Inc., Richmond Plant, Laurel Hill, N. C., plans new, one-story extension, new roofing throughout, and new superintendent's office. Plant and addition will be air-conditioned, and fluorescent lighting will be installed. J. H. McPherson Co., Greenville, S. C., is in charge of engineering.

Neisler Mills, Inc., Kings Mountain, N. C., has had survey of manufacturing layout and methods of Palmetto Mills at Pageland, S. C., made by Werner Textile Consultants, Inc., and P. O. M. Co., industrial consultants. Same firms have been retained to survey Neisler's Mayo Mills.

Osceola Mill, unit of Textiles, Inc., Gastonia, N. C., has completed part of remodeling program in the spinning room. Textiles, Inc., operates 13 plants and is spending $1,500,000 over a period of 3 yr. to modernize and improve them.

Palmetto Cotton Mills, Palmetto, Ga., will award contract soon for one-story addition. Robert & Co., Atlanta, Ga., is engineer.

Pee Dee Mills, Inc., Rockingham, N. C., has been purchased by Greek syndicate headed by D. C. Georgopoulos, who had previously purchased a substantial stock interest in mill. A new company, Pee Dee Textile Co., has been formed to take over property. Mills recently reopened after long shutdown due to strike.

Proximity Mfg. Co., and **Revolution Cotton Mills,** Greensboro, N. C.—Directors

THE WETTER YOUR PLANT EQUIPMENT AND WALLS THE MORE YOU NEED

DAMP-TEX ENAMEL

Proved Fungus Resistant by FUNGUS TEST

PRESERVES AND BEAUTIFIES DINGY WET WALLS AND EQUIPMENT

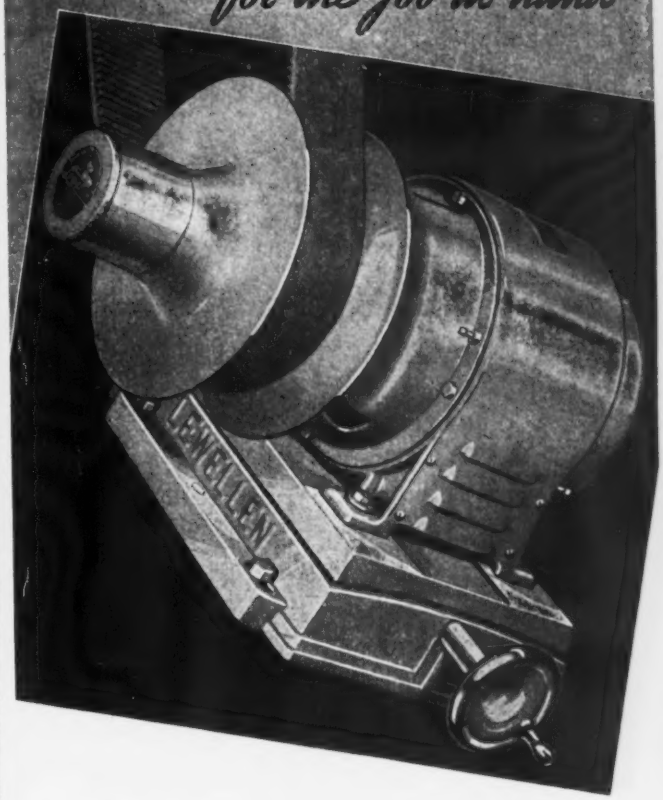
Dark, dingy walls cut down efficiency Rusty, neglected equipment increases depreciation costs. Rot, bacteria and fungus play havoc generally. The Damp-Tex system was created for the plant where the presence of moisture, heat and other unusual conditions hinders proper surface maintenance. Over 4,000 plants have discovered its superiorities. Write for our trial offer.

Proved Lactic Acid Resistant by ACID TEST

STEELCOTE MFG. CO. • ST. LOUIS, MO.

Canadian Manufacturer—Standard Paint & Varnish Co., Windsor, Canada

When you have the RIGHT SPEED for the job at hand



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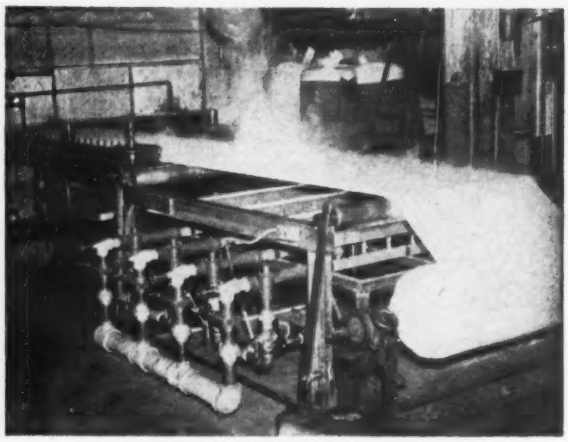
Provides variable speed adjustability by a simple turn of a handwheel. Have the exact speed you want at the TIME YOU WANT IT for maximum machine output, product uniformity, and minimum spoilage. Avoid the waste of time to change belts and gears. Keep production flowing smoothly. Back of each Lewellen Variable-Speed Motor Pulley is more than 45 years experience in speed control engineering. Look to Lewellen and you look to the pioneer! Lewellen Variable-Speed Transmissions, Variable-Speed Motor Pulleys, and Automatic Controls are in use the country over.

Call a Lewellen Representative or write TODAY!
LEWELLEN MANUFACTURING CO., COLUMBUS, IND.

LEWELLEN Variable Speed MOTOR PULLEY



RED-RAY BURNERS INSTALLED AHEAD OF ENCLOSURE ON TENTER FRAME

Preheating and partial drying Increase capacity of frame

Write for Bulletins

Red-Ray Manufacturing Co., Inc.

455 West 45th St. • New York 19, N. Y.

For Maintained Shrinkage— Perfect Finish—Long Life

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→COMPRESSIVE SHRINKAGE←

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for use in shrinking fabrics to the *"Sanforized"* standard by the Compressive Shrinkage process, are daily meeting the most exacting requirements of finishers throughout the industry. From the lightest and finest fabric to the heaviest denim, there is a special Huyck blanket to meet your specific needs.

Huyck blankets retain high shrinkage and finish properties to the last.

***PALMER BLANKETS*—also available for your special requirements.**

Write for information or see our representative

F. C. HUYCK & SONS

KENWOOD MILLS

Albany 1, New York

have approved merger of two firms into new combine which would be known as Cone Mills Corp. Move would become effective Jan. 1, if approved by majority of stockholders at meeting Dec. 12. Merger would set up a corporation controlling 475,000 spindles and 14,000 looms, and would encompass 15 weaving and spinning plants and two finishing plants, all in North Carolina, with the exception of American Spinning Co., Greenville, S. C.

Strickland Cotton Mills, Valdosta, Ga., has asked bids for erection of two-story addition.

Spartan Mills, No. 2 unit, Spartanburg, S. C., is being reroofed and work is expected to be completed soon. Glass insulation is being used in the work. It is designed to retain warmth in winter and be cool in summer inside the mill.

Textiles, Inc., Gastonia, N. C., is adding new machinery and other equipment. Company's modernization program, ranging over a 3-yr. period, involves an outlay of about $1,500,000. Ten new cards are being installed in the Victory plant, and five each in the Mutual, Ridge, and Winget mills. Company has recently completed installation of new pickers and opening machinery at the Mutual plant where large warehouse is now under construction.

United Merchants & Manufacturers, Inc., New York, N. Y., is spending $3,000,000 for additions, new equipment and improvements at mills in Bath, S. C. Another $3,000,000 is being spent to rehabilitate Seminole Mills, Clearwater, S. C.

Utica & Mohawk Cotton Mills, Inc., Seneca, S. C., has just begun operations in its new $1,500,000 addition which was designed by J. E. Sirrine Co., Greenville, S. C., and constructed under the supervision of Daniel Construction Co., Greenville. Facilities recently completed include new office space, large warehouse additions, and houses for employees.

Ware Cotton Batting Co., New Orleans, La., has let contract to Perrilliat-Rickey Construction Co., New Orleans, for new one-story plant to cost about $130,000, with equipment.

Watatic Spinning Mills, Inc., Fitchburg, Mass., has purchased large three-story mill building in rear of its plant. New addition has a floor space of 43,000 sq. ft.

Western Cotton Mills, Inc., Hanford, Calif., will establish plant to manufacture cotton twine and yarn.

Wool Mill News

Ashaway Woolen Mills, Inc., Ashaway, R. I., has been purchased by Marcellus J. Connor from M. L. and F. B. Finch of Kew Gardens, N. Y. Mills plan to start operations by Dec. 1, under new name.

Belleville Woolen Co., Belleville, R. I., has increased capital to $1,000,000, for general expansion.

Blue Ridge Weavers, Inc., Hendersonville, N. C., is newly established plant for spinning wool.

Brooks Mfg. Co., Greensboro, Ga., has been organized and is constructing worsted-yarn plant which will be in operation by Dec. 1. Mill will start operations with 1,000 spindles.

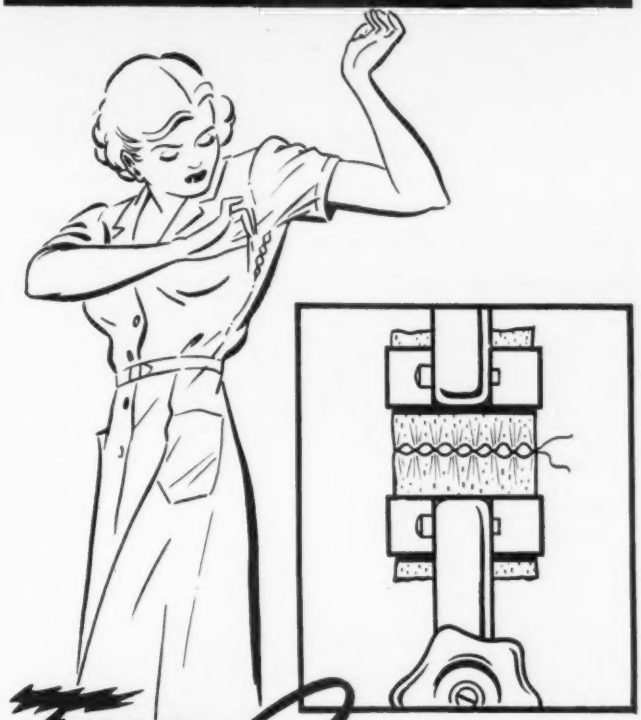
Canadian Worsted Mfrs., Ltd., St. Thomas, Ont., new concern, plans to complete building which was formerly an uncompleted brewery to height of three stories. Cost about $40,000.

John Crowther & Son, Ltd., Union Mills, Canada, Ltd., a British concern, will construct Canadian branch plant in Elmira, Ont. Initial cost of equipment and machinery will be $250,000. L. A. Dunbar and Carl Dare, both of Kitchener, Ont., are directors. Unit will occupy between 50,000 and 100,000 sq. ft. of floor space. Plans provide for additions and permit expansion to 200,000 sq. ft. within a two-year period. Henry Vogel of Huddersfield, Eng., is coming to Elmira as chairman of board.

Esmond Mills, Waynesboro, Va., is reported to be considering the wool-production area around San Antonio, Texas, as a possible site for an additional blanket plant.

Forstmann Woolen Co., Passaic, N. J., is having plans completed by Stone & Webster Engineering Corp., Boston, Mass., engineer, for pro-

TESTED IS TRUSTED



TEAR Resistance

*Scott Tester Model J tests fabrics for tensile strength up to 500 lbs. The same Tester is convertible for Burst Test by Attachment W. World-standard tests, "picturized" graph results.

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2. Greater saving of steam and water.
3. Production of cleaner, higher quality work.

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The following is a typical letter written by a client, indicating the range and quality of service rendered by the Barnes engineers:

"We have employed Barnes Textile Associates, Inc. regularly since 1928. During this period we have consulted them on an infinite variety of problems having to do with the efficient operation of a textile plant.

"They have installed our cost systems, labormeters, carried out time and operating studies, worked with us in labor conferences, installed quality controls, advised us with regard to merchandising, assisted us in the purchase of machinery, laid out one completely modern plant which is in operation today, employing 2,300 employees, and have submitted plans for an additional plant and modern dye house.

"We consider them the outstanding textile engineers in the country today, both with regard to ability and integrity, and, during our nineteen years of close contact with this firm, their services have been invaluable."

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posed new mill, reported to cost over $175,000.

Harris, Emery Co., Quechee, Vt., has improvement program under way that includes enlargement of dyehouse and replacement of machinery in card room. Changes are expected to be completed this year.

Meansweave, Inc., Lowell, Mass., has been chartered to operate worsted yarn mill. P. O. Wolcott is president and treasurer.

Norad Spinning Corp., North Adams, Mass., has been formed to take over Norad Mill that was operated by Blackinton Mills, Inc., North Adams, prior to January, 1947.

Rayon & Silk Mill News

American Enka Corp., Lowland, Tenn., has completed two buildings, and has started the steel work on three others. Plant will represent a cost of $25,000,000, and will have facilities for producing 20,000,000 lb. of rayon tire cord annually, with provisions for an additional 2,000,000 lb. of rayon textile yarn.

Bemson Silk Mills, Inc., Buena Vista, Va., is replacing practically all old looms with newest type of automatic looms, including both Crompton & Knowles and Draper.

Burlington Mills Corp., Greensboro, N. C., will begin remodeling work at New River Ordnance plant, Dublin, Va., immediately, and expects to begin operation of dyeing plant on small scale early next spring. Additional machinery will be received about the first of next year. B. M. Keever is superintendent.

Celanese Corp. of America, has completed steel work on spinning division building of new plant at Rock Hill, S. C. Work is progressing on or ahead of schedule on all units of $40,000,000 project. Daniel Construction Co., Greenville, S. C., has contract.

Cleveland Silk Mills, Inc., South Cleveland, Tenn., has been sold to Duplan Corp., New York, N. Y. C. Z. Taylor, manager of plant for the past 10 yr., will remain in the same capacity.

Dighton Mfg. Co., North Dighton, Mass., has been organized to operate rayon fabric mill. Richard K. Martin is president.

Duplan Corp., Lincolnton, N. C., has begun operations with approximately 300 operatives. Duplan has spent $1,000,000 in past year on remodeling plant and erection of addition. Combined total of floor space in new and old buildings amounts to about 120,000 sq. ft. New machinery includes equipment for carding and spinning and 200 looms. Plant will produce rayon fabric in the gray.

Erlanger Mills, Lexington, N. C., has modernization and improvement program under way. An addition to the weave room is under construction; new looms are on order, and, later, other new looms will be installed. Mill now operates 983 looms on filament, spun, and blended materials.

Essex Mills, Inc., Essex, Conn., has acquired new local plant, constructed by Sight Light Corp., and never occupied.

Globe Silk Co., Ltd., Mount Royal, a section of Montreal, Que., has started construction on mill building. Cost is about $60,000.

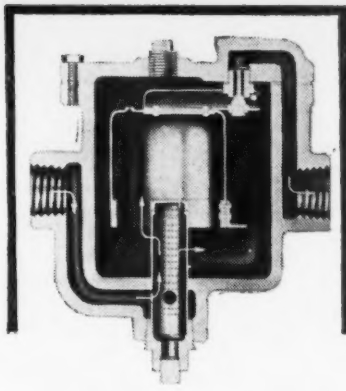
Industrial Rayon Corp., Cleveland, Ohio, has begun installation of new fume-control unit at plant estimated to cost about $100,000.

Luray Textile Corp., Luray, Va., has begun work on additional facilities which will increase capacity by 50%.

May McEwen Kaiser Co., Inc., Burlington, N. C.—Stockholders have approved proposed reorganization of company under which business of firm will be acquired by Burlington Mills Corp., Greensboro, N. C.

Pasquar Fabrics Co., Hawley, Pa., has purchased former John C. Welwood Mills, White Mills, Pa. New owners will occupy property in 1948.

Raycrest Mills, Inc., Pawtucket, R. I., has begun $1,000,000 improvement and modernization program. Before end of year, 300 new looms and 10,000 new throwing spindles will be installed, with 200 more looms on order for next year. Company has just completed new boiler room. Expansion may be extended to in-



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Standard sizes ½ to 2 in., 10 to 150 lbs. and 10 to 250 lbs. Forged steel types for pressures to 900 lbs. and for superheat. Catalog 350.

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prevent abrasion
improve twist-set
and stitch, leave yarns soft, workable

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Developed, tested by Laurel Laboratory—to meet exacting rayon requirements, Laurel Rayon Oils are processing favorites of leading mills. Take advantage of this Laurel experience and save processing time and money. Send today for trial order.

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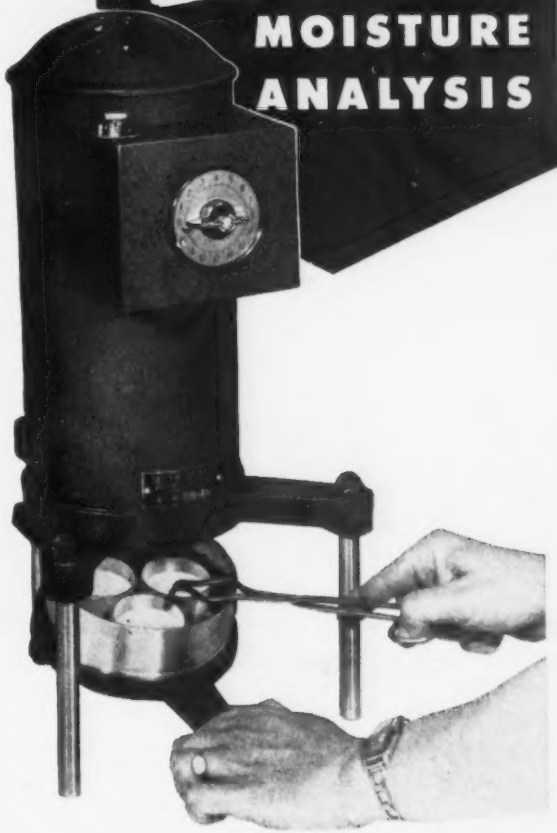
FLASH-DRYING SPEEDS MOISTURE ANALYSIS



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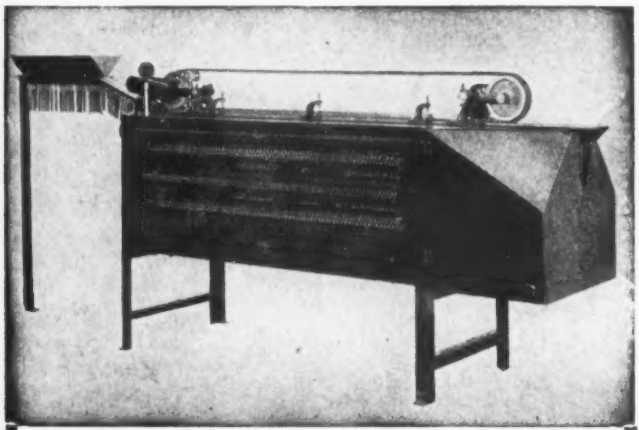

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RAYON YARNS

The Terrell Co., *Inc.*

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clude erection of new wing on present plant. Nathan Sheinman is president.

Rhode Island Fabrics Co., Inc., Pawtucket, R. I., has awarded contract to Henry M. Soule, Pawtucket, R. I., for $55,000 addition of brick and cinder-block construction. Plans by Dwight Seabury Co. call for two-story structure.

Robbins Cloth Mills, Inc., Robbins, N. C., affiliated with Colonial Mill, Inc., has let contract to C. M. Guest & Sons, Greensboro, N. C., for proposed new spun-rayon mill at Aberdeen, N. C. Biberstein & Bowles, Charlotte, N. C., is engineer.

Special Yarns Co., Rutherfordton, N. C., previously a partnership of M. O. Dickerson and D. A. Deviney, has been incorporated. The concern, which manufactures combination hosiery yarns, cotton and rayon yarns, has an authorized capital stock of $100,000.

Verney Corp., Boston, Mass., has sold 30,000-spindle mill at Fall River, Mass., to Crescent Corp., same city. Part of machinery was transferred before sale to other weaving plants of Verney organization to balance production facilities.

Knitting Mill News

Apex Hosiery Co., Philadelphia, Pa., has let $750,000 air-conditioning contract to Carrier Corp., Syracuse, N. Y. Each floor of plant will be divided into 12 air-conditioning zones, and over-all equipment will be capable of handling 305,000 cu. ft. of air per min. Company also plans to replace all windows in building with glass block, in conjunction with new program.

Dovedown Hosiery Mills, Griffin, Ga., has recently installed additional Komet knitting machines to expand production of links-and-links anklets.

Graham Hosiery Mill, Inc., Graham, N. C., has moved into new building on Maple Ave. extension. Building measures 90x160 ft., and company now has six full-fashioned machines in operation and plans to expand to 16 machines when deliveries can be made.

Heber Springs, Ark.—A. L. Clark will establish mill to manufacture and finish hosiery. Most of machinery will be moved from North Carolina.

Humboldt Full-Fashioned Hosiery Mills, Humboldt, Tenn., a subsidiary of Wayne Knitting Mills, Wayne, Ind., is about 80% complete, and contractors hope to turn plant over to the operators within a few weeks. Cost about $2,500,000.

Jaynson Knitting Co., York, Pa., has let contract to Reindollar & Son, York, for new one-story mill. Cost is over $100,000 with equipment.

May Hosiery Mills, Nashville, Tenn., has acquired plant of Davis Hosiery Mills, Newport, Tenn., including certain equipment, and will operate as branch mill.

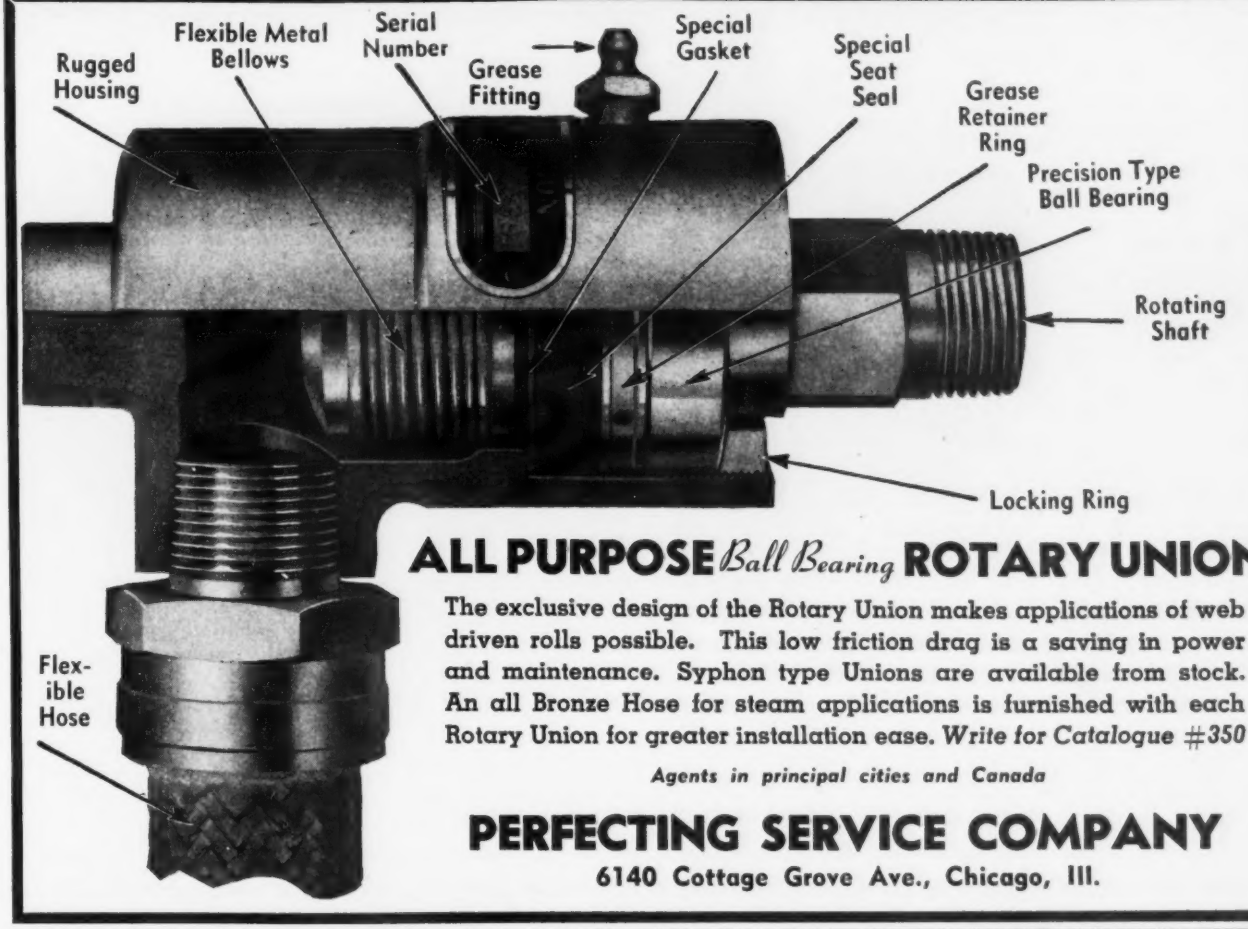
Moosic, Pa.—A new $140,000 nylon hosiery mill is to be built here. Mill will contain 35,000 sq. ft. of floor space and is to be completed early next year. Chambers of Commerce of Pittston and Moosic are building plant jointly, but name of company for which it is being constructed has not been revealed. Mill will employ about 200 when in operation.

Phoenix Hosiery Co., Beaver Dam, Wis., has formally opened new plant. Building is two stories, with basement 80x160 ft., and has 25,000 sq. ft. of floor space. New ideas in layout for production have been incorporated. Program cost around $250,000.

Shamrock Knitting Mill, Marietta, Ga., has plans under way to enlarge plant which was erected in February, 1946.

Softspun Knitting Mills, Henderson, N. C., newly organized, has started operations with full production scheduled. A dozen new machines were put into operation at the beginning, and 20 additional knitting machines are about to be added.

Standard Hosiery Mills, Inc., Burlington, N. C., has completed extensive enlargement and conversion program. Seamless knitting plant at Alamance, N. C., has been enlarged by addition of several thousand square feet of floor space, and contracts for additional knitting machines have been placed to provide increased production of men's hosiery. New Komet machines of 200-needle and 132-needle types have already been installed and deliv-



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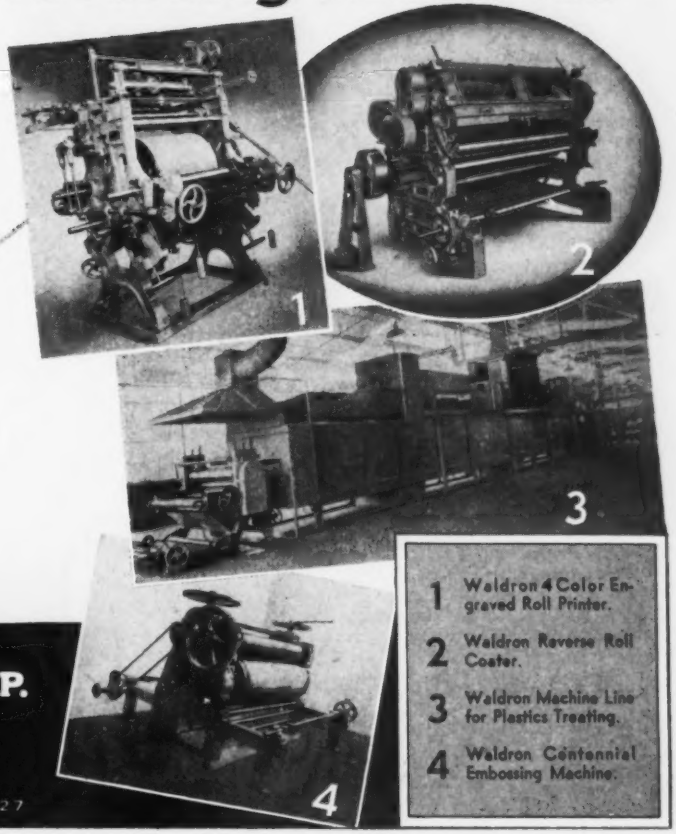
WALDRON machines are part of the picture of the fascinating new materials that are setting new standards of converting skill. Beauty, utility and durability are being imparted to fabrics with the aid of these modern machines. Investigate the possibilities for your product. Write for detailed information.



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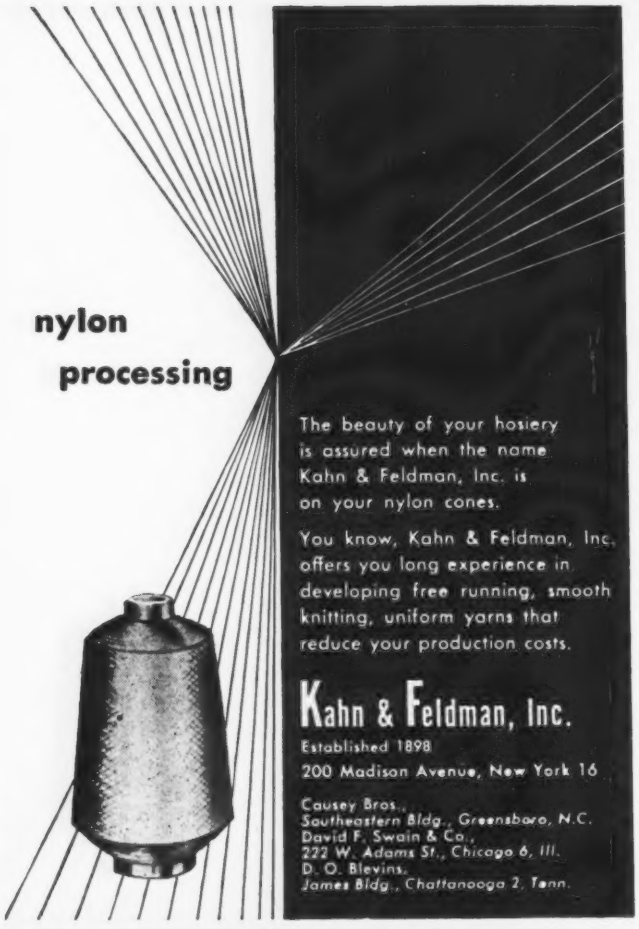
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Lace spindle tapes 10 times faster with Clipper No. 25 Spindle Tape Hooks. Tapes can be prepared in advance so frame is shut down only long enough to place new tape on the pulleys and join ends with connecting pin. Tapes run true—last longer—run smoother—require less tension—VIBRATION IS ELIMINATED
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BELT LACING EQUIPMENT
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eries of additional wrap machines have been promised for 1948. Full-fashioned division has received new 30-section, 51-gage. Reading machine which is now in operation. It is the first of several machines that will be installed in full-fashioned plant. In the full-fashioned finishing division, a new automatic boarding machine has been added and is being used entirely for boarding 15 den. nylon. Several new Banner wrap machines have been installed at the Webb Div.

Utica Knitting Co., Utica, N. Y., is progressing rapidly on $75,000 rehabilitation project for company's power plant. When completed, it will serve several units of company.

Vogt Knitting Mills, Inc., McMinnville, Tenn., will begin installation of additional knitting machines and auxiliary equipment at an early date.

Wolsey Ltd., Leicester, Eng., now has in operation its new branch plant for production of men's half-hose in former Dominion Arsenal at St. Malo, Que. Plant contains 35,000 sq. ft. of floor space, and adjacent land has been acquired for contemplated expansion. Company will later produce knitted outerwear.

Dyeing & Finishing Plant News

American Finishing Co., Memphis, Tenn., now has new fabric-coating plant in operation, and two high-speed printing machines are being installed. Company also has adopted the Definized and Definized G processes of shrinkage control for cottons and rayons.

Carter Finishing Co., Inc., Gastonia, N. C., has been organized and granted certificate of incorporation to engage in bleaching and dyeing under authorized capital stock of $250,000. Incorporators are A. D. Carter, Ruby Gregg, and Mae Carter.

Central Franklin Process Co., Chattanooga, Tenn., has let contract to Mark W. Wilson Co., Chattanooga, for one-story addition to cost about $67,000, exclusive of equipment.

Commercial Dyers & Bleachers, Montreal, Que., is planning new plant building, one-story, 50x100-ft., on site at 9400 St. Lawrence Blvd., Montreal. Structure will be of steel, brick, and concrete-block construction.

Herward-Ranger, Inc., Walpole, Mass., has been formed as the result of merger of Herward Fabrics Co. and Ranger Co. The ownership and management remain as before.

National Dyeing & Finishing Corp. has acquired 2½-acre site on Hayden Ave., Culver City, Calif., on which it will build modern plant. The land, plant buildings, and equipment will cost about $500,000. Corporation was represented in transaction by Plant Engineering Co.

Sanco Piece Dye Works, Inc., Phillipsburg, N. J., has contracted to purchase all roller and screen printing equipment of Phillipsburg Textile Print Works, Inc., Phillipsburg, N. J. Sanco will operate newly acquired equipment as separate unit to be known as the Sanco Print Div. Phillipsburg Textile Print Works, Inc., will continue in business, setting up new plant with six roller-printing machines promised for delivery shortly.

Union Textile Printers, Inc., Secaucus, N. J., has been formed by merger of Try-Us Textile Processing Co., Inc., and Fabrics Process Corp. New plant has 65,000 sq. ft. of space and contains new machinery in addition to that of two merged firms. Hyman Protsky is president; Frank Soifer and Harold Sadowsky are vice presidents; and Joseph Pink is in charge of plant.

Valley Dyeing & Finishing Co., Edmond St., Valleyfield, Que., is having one-story addition, 22x100 ft., erected to boiler room.

Verney Corp., Worsted Division, East Greenwich, R. I., plans construction of one-story building to house new wool-top dyeing equipment. Structure will have glass-block windows and flat roof supported by I-beam girders, eliminating all interior posts. New machinery will include six dye kettles, one three-bowl backwasher with four-head intersecting gill boxes, one four-section perforated-plate conveyor-dryer, four single-head intersecting gill boxes, and two double-head single intersecting delivery blenders. Modern ventilation system is to be installed.

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including daughters, mothers and grandmothers are happy to receive hosiery *"DuraBeau" finished,* not only at Yuletide, but throughout the year, — because *"DuraBeau"* endows hosiery with exquisitely dull sheerness, plus increased spot, snag and run resistance . . . thus adding "miles more wear". Remember, "DuraBeau" imparts the *film of protection and beauty.*

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Holders for all types of mules, frames, twisters and winders.

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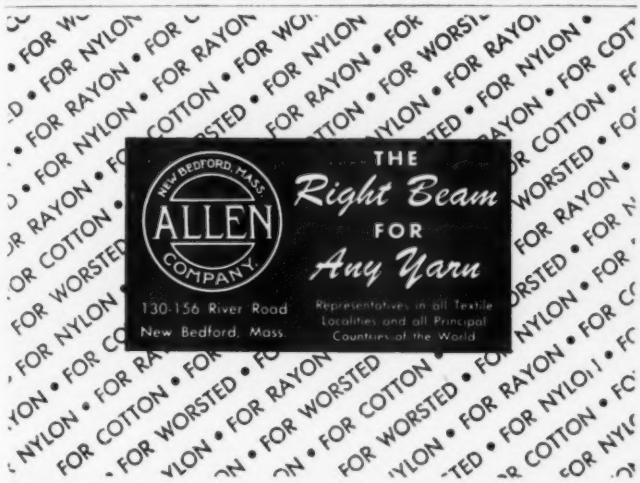

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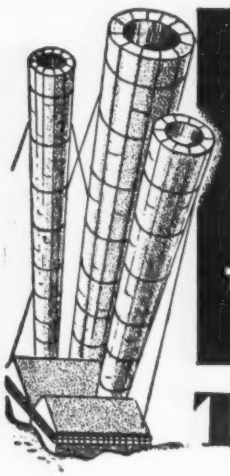

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NEWS ABOUT *Men*

Charles C. Hertwig has been elected president of Bibb Mfg. Co., Macon, Ga., to succeed **W. D. Anderson** who was named chairman of board of directors. **A. A. Drake** has been named executive vice president; **P. E. Findlay, Sr.,** vice president in charge of sales; **Fred G. Barnes,** vice president in charge of raw materials; and **L. R. Brunby,** vice president in charge of manufacturing. **H. J. Bivins** was appointed treasurer; **O. S. Neylans,** assistant secretary and treasurer; **G. P. Barnwell,** general sales manager; and **Robert Fain,** comptroller.

Marion Heiss, president of Revolution Cotton Mills, Greensboro, N. C., has been elected a vice president of Proximity Mfg. Co., Greensboro.

W. Basil Hill, formerly an executive of Callaway Mills, has become resident vice president and general manager of Pomona Mfg. Co., Greensboro, N. C.

Julian C. Haron has been elected vice president of Cannon Mills, Kannapolis, N. C. He has been affiliated with the Cannon company for 25 yr., much of the time as production manager.

E. A. Pumphrey has been elected to the board of directors of Elmira Knitting Mills, Elmira, N. Y.

Fred L. Still, general manager of the Smitherman Cotton Mills, Troy, N. C., has been elected secretary-treasurer of the company; **W. L. Grimsley** was named assistant secretary-treasurer.

John H. Thomas, formerly vice president in charge of sales for Owens-Corning Fiberglas Corp., Toledo, Ohio, has been named to succeed **George E. Gregory** as vice president and purchasing director of corporation. **Ben S. Wright** becomes general sales manager.

John K. Murphy, Jr., has joined F. Eugene Ackerman Associates, New York, as an associate and partner. His first activity will be a survey looking toward expansion of the American Wool Council.

Clifford W. Brown has been named manufacturing agent of the Arlington Mills Div. of William Whitman Co., Inc., Lawrence, Mass., succeeding **J. Sime Mercer.** Mr. Brown joined Arlington in 1930 in the top department, having spent the 7 yr. previous with Stillwater Worsted Mills. He was promoted successively to superintendent of yarn production; superintendent of the top mill; and, in July, 1946, to assistant manufacturing agent. Mr. Mercer is retiring as manufacturing agent upon advice of his physician. He has been with Arlington since 1931 and will continue as a consultant on a regular part-time basis. **Ernest A. Johnson** continues as assistant agent in charge of cloth manufacturing and **Robert Saltonstall** continues as assistant agent in charge of industrial relations. **Albert A. List** is president.

Russell B. Harding, textile stylist, has joined Goodall Fabrics Inc., New York, to serve in that capacity at the New York office. He was associated with Collins & Aikman as a stylist for 23 yr. before joining Goodall Fabrics.

J. N. Lindeke, who has been vice president in charge of the Minneapolis plant of the North Star Woolen Mill Co., has been elected vice president in charge of sales and merchandising for the entire company.

Sumner J. Robinson has been appointed sales manager of the Home Furnishings Div. of Goodall Fabrics, Inc., New York.

C. L. Parker, formerly associated with Dow Chemical Co., Midland, Mich., as director of the field program on Saran filaments, is now in charge of design for the Lumite Div. of the Chicopee Mfg. Corp., New York.

P. A. Wells, general secretary of the Society of Dyers &

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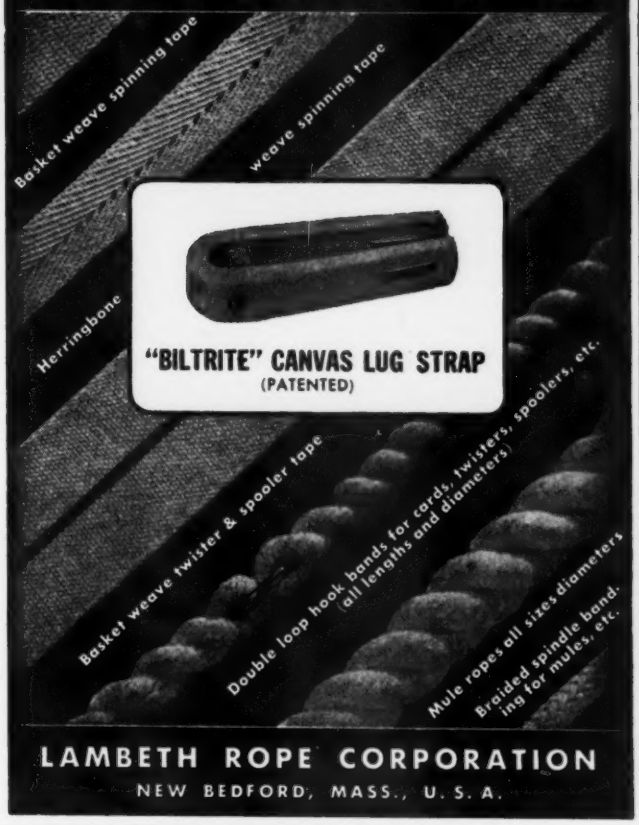
Basket weave spinning tape
weave spinning tape
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(PATENTED)
Herringbone
Basket weave twister & spooler tape
Double loop hook bands for cards, twisters, spoolers, etc. (all lengths and diameters)
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CAMDEN CO., NEW JERSEY

Colorists, Bradford, England, has been appointed director of education in the International Wool Secretariat, London.

George L. Barron, manager of the rayon converting department of Brookhaven Textiles, Inc., New York, for the last two years, has become sales representative for this firm in the Southeastern states with headquarters in Greenville S. C.

Joseph A. Golden, has been appointed by Burlington Mills Corp., New York, as head of its men's outerwear division to succeed **Morris Gardner,** who has resigned. **Mr. Golden** has been associated with leading men's wear mills in styling and merchandising.

John W. Solomon, former owner and manager of Marjon Fashions, Sylacauga, Ala., has been appointed general sales manager of the textile division of United States Rubber Co. He was at one time a vice president of Avondale Mills.

Thomas F. Terry was guest of honor on Oct. 27 at ceremonies in the office of **Frederick B. Klein,** president of Alexander Smith & Sons Carpet Co., Yonkers, N. Y., to mark completion of 60-yr. service with the company. Had it not been for brief periods spent in other occupations early in his career, Mr. Terry's record with the Smith company would have extended over a period of 70 yr. He is now 83 yr. old and serves as gate keeper. His contemporaries with the company include **Catherine Mahoney** of the velvet finishing department, with over 62 yr. to her credit; **Patrick Hayes,** velvet mill watchman, with 62 yr.; and **Mary Burns** of the axminster setting department, with 66 yr.

Gerald S. Tompkins, formerly manager of plant of American Viscose Corp., Front Royal, Va., has been appointed general manager of corporation's seven plants in Virginia, West Virginia, and Pennsylvania. He succeeds **George Allen,** who has been appointed assistant to the vice president. **Arthur B. Richardson,** assistant manufacturing superintendent at plant at Roanoke, Va., has retired after being associated with company for 31 yr. in various capacities.

Peter A. Beddon, formerly plant manager of plant of Textron, Inc., at Lowell, Mass., has been transferred to Textron unit at Manchester, N. H., as general manager. He is also overseeing final operations at Lowell where unit is being closed down and its equipment is being transferred to other Textron units.

Donald W. Barnes has resigned as assistant treasurer and resident manager of Cedartown Textiles, Inc., Cedartown, Ga., and Macon Textiles, Inc., Macon, Ga. **A. F. Durkee,** formerly assistant treasurer of both firms, will act as resident manager at Macon. **Peter Doonan** will be resident manager of Cedartown unit.

Tom B. Sain has become manager of Harriman Hosiery Mills, Harriman, Tenn., succeeding **M. W. Walker** and **J. L. Tarwater,** who are no longer with the mills. He was formerly superintendent of three Burlington hosiery mills in Virginia, and for the last year has been group manager of all full-fashioned plants in the Burlington organization. Harriman mills is a unit of Burlington Mills Corp.

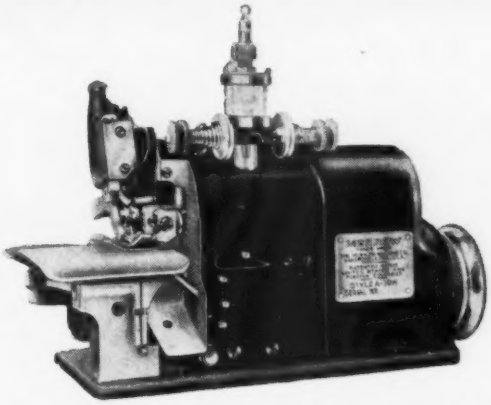
Fred T. Lawson has resigned as superintendent of Cleveland Cloth Mills, Shelby, N. C., and **Jesse A. White,** plant manager of Slater Mfg. Co., **Slater,** S. C., another unit of J. P. Stevens & Co., will spend a part of his time in Shelby to help with direction of manufacturing operations.

Merrill G. Morris is now superintendent of dyeing at Rock River Woolen Mills, Janesville, Wis. For last 15 yr., Mr. Morris has been at the mill on special assignments, while technical director for Chicago branch of National Aniline Div., Allied Chemical & Dye Corp.

L. M. Saxon is now connected with F. Burkart Mfg. Co., Philadelphia, Pa., as general superintendent. For the last several years he has been with Southern Spinning Co., Nashville, Tenn., as superintendent, **T. V. Milbert** is assistant superintendent and **T. S. Beardsley,** manager of Burkart Co.

G. J. Sheatt is new general manager of Monarch and Ottaray Mills, Union, S. C.

B. P. Albright, vice president of American Yarn & Processing Co., Mount Holly,



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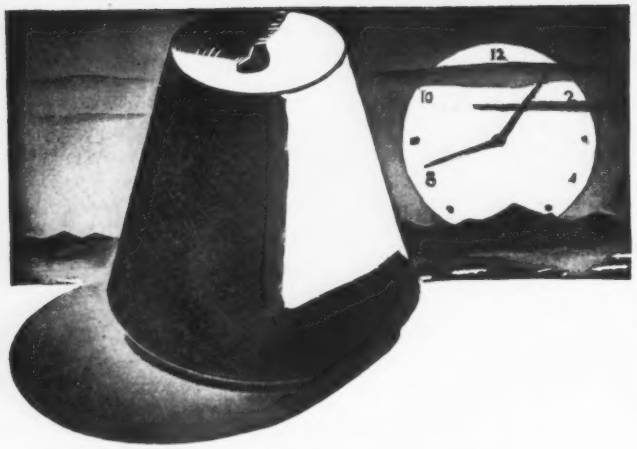

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NOVELTY YARNS

NEWS ABOUT MEN

N. C., has accepted position of general superintendent of USEO Div. of Callaway Mills, LaGrange, Ga. He succeeds **W. B. Hill** who has resigned to accept position with Pomona Mfg. Co., Greensboro, N. C., as vice president and general manager.

B. W. Bingham has resigned as superintendent of Brookwood Mills, Taylorsville, N. C., and has become general superintendent of Algodon Mfg. Co., units No. 1 and No. 2, Bessemer City, N. C.

O. S. Brock has succeeded **A. H. Clarke** as manager at Indianapolis Bleaching Co., of Bemis Bros. Bag Co., Indianapolis, Ind.

B. K. Gunn has been appointed general manager of Penman's, Ltd., Montreal, P. Q., to succeed the late H. W. Lundy. Mr. Gunn has been with the company for 37 yr. and recently has been assistant general manager. **B. X. C. Baily** will replace Mr. Gunn.

William F. Goedecke, merchandising manager, has been elected vice president of Stark Bros. Ribbon Corp., narrow fabrics division of Burlington Mills Corp., New York, N. Y.

William H. Burroughs, former Burlington Mills Corp. official, has been appointed controller of Reeves Bros., Inc., New York.

Fred Broyhill has been named superintendent of Royal Cotton Mills, Wake Forest, N. C.

Archie Chevrette is now overseer of dyeing in knitting department of Kilburn Mills, New Bedford, Mass.

Philip Brann is overseer of carding for W. Libby Co., Lewiston, Me.

Armand Courtamanche is overseer of finishing at Guild Northland Mills, Laconia, N. H.

John Edwards has been transferred from weaving division of American Viscose Corp. Textile Research Dept. to Meadville, Pa., to become assistant to **P. W. Brown,** resident plant representative of department.

William Flannagan is now overseer of twisting at Malden Spinning & Dyeing Co., Malden, Mass.

Simon Goldberg, overseer of weaving at Medway Mills, West Medway, Mass., has resigned and **James Mohan,** former overseer of dressing, succeeds him.

E. W. Hammett is now overseer of weaving at the unit of West Point Mfg. Co. at Lanett, Ala.

John Heaton is overseer of finishing for American Woolen Co., Norwich, Conn., succeeding **W. C. Harmon** who is now with Neponset Woolen Mills, Canton, Mass.

L. L. Jackson, overseer of finishing at Matson Mills, South Glastonbury, Conn., has left the company. **H. G. Pero** is now overseer of carding.

R. G. Jamieson was recently appointed manager of Gibson Mill of Canadian Cottons Ltd., Marysville, N. B.

Adolphus Jarvis is now overseer of weaving for Grosvenor-Dale Co., Grosvenor Dale, Conn.

Clayton R. Jewett has been named overseer of spinning and **John P. Ryan,** overseer of finishing, for Sebago Woolen Mills, Bridgeton, Me.

Fred Levesque is now overseer of carding, spinning, spooling, and warping for Johnson & Johnson, Chicopee Falls, Mass.

Richard Mealey, overseer of finishing, has reentered the employ of Gibson Woolen Mills, Tilton, N. H., succeeding **E. Vanasse** who is now with Gaunt Worsted Mills, West Warwick, R. I.

Frank Nabors is new assistant overseer of spinning and carding at Marion Mfg. Co., Marion, N. C. He formerly held similar position at Beaumont Mfg. Co., Spartanburg, S. C.

F. E. Bozeman, Jr., has resigned as assistant superintendent of Standard-Coosa-Thatcher Co., Chattanooga, Tenn., and has accepted position of superintendent of maintenance at Dan River Mills, Inc., Danville, Va.

Earle A. Clements has been appointed superintendent at Glenshire Mills, Inc., Pen Argyle, Pa. He was formerly superintendent of Globe Knitting Works, Grand Rapids, Mich., and Tricot, Inc., Cadillac, Mich.

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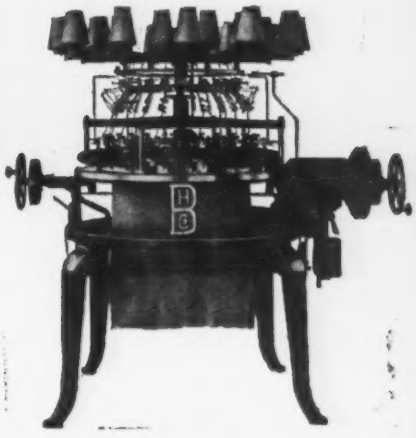

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NEWS ABOUT MEN

Albert Coates has been named overseer of dyeing at Sawyer, Regan Co., Dalton, Mass., to succeed **John T.** Ayres, retired because of ill health.

E. R. Cotton, cloth room overseer, has left Wauregan-Quinebaug Mills, Wauregan, Conn.

Boyce Covington has been transferred from the Camden, S. C., unit of Kendall Co., to company's Mollohon plant, Newberry, S. C.

George Gage, Jr., is now overseer of spinning at Eureka plant of Springs Cotton Mills, Chester, S. C., succeeding **K. B. Brigman,** who recently resigned to accept position with the Olympia Mill, unit of Pacific Mills, Columbia, S. C.

John R. Harvey, formerly superintendent of Valentine Mills, Bennington, Vt., has joined sales staff of Maurice Lobsitz, Nutley, N. J.

Robert Wakeham, overseer of English drawing, and **Raymond Whitehead,** overseer of worsted carding, have left Wood Worsted Mill of American Woolen Co., Lawrence, Mass.

Claude Warren has been appointed assistant superintendent of the No. 1 plant of Dan River Mills, Inc., Danville, Va. He was formerly overseer of weaving at No. 4 plant of the same company.

M. D. Holmes has become superintendent of Quitman Mills, Inc., Quitman, Ga., succeeding **J. C. Holt.**

Fred T. Lawson, formerly with Cleveland Cloth Mills, Shelby, N. C., has become superintendent of Robbins Cloth Mill, Robbins, N. C.

Walter Lynch is newly appointed superintendent of Sellers Mfg. Co., Saxapahaw, N. C.

Arthur L. Mullen has resigned as yarn superintendent for Barham Mills, Brockton, Mass., to accept position of superintendent of Albany Woolen Mills, Rensselaer, N. Y.

W. O. Reed is now overseer of carding and spinning at Victory Mills, Salisbury, N. C.

Fred Broyhill has resigned his position with the Winget and Victory units of Textiles, Inc., Gastonia, N. C., to become superintendent of Royal Cotton Mills, Wake Forest, N. C.

Thomas L. Rusk, Jr., has been transferred from the educational branch of textile research department of American Viscose Corp. to the department's weaving division at Roanoke, Va. He formerly was associated with Pawtucket Dyeing & Bleaching Co., and Boston Duck Co.

Wm. H. White, superintendent of Ladlassie unit of Textron Southern, Inc., Anderson, S. C., has resigned to accept position of superintendent of Laurens Cotton Mills, Laurens, S. C., succeeding **R. W. McCrary.**

Hugh T. Bundy has been promoted to assistant manager of blanket, sheeting, bleaching, and finishing mills at Fieldcrest Mills, Spray, N. C. He succeeds **John P. Powell,** resigned.

Paul J. Schoenfield is now overseer of carding for Hill Woolen Mills, Norwich, Conn.

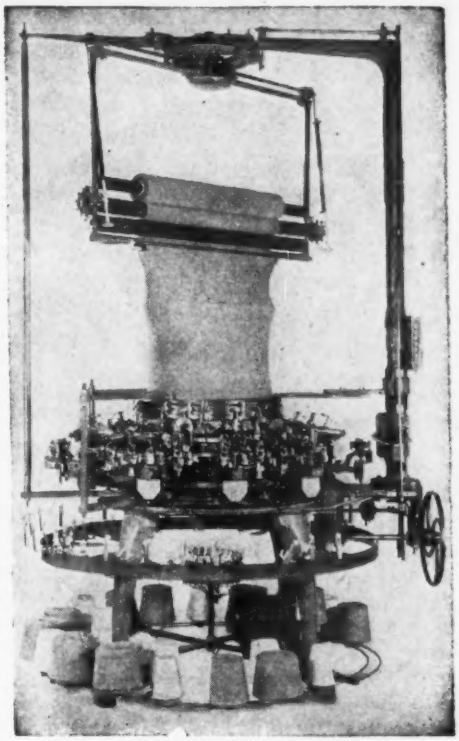
J. A. Koerber has resigned as assistant purchasing agent of James Lees & Sons Co., Bridgeport, Pa.

Obituary

Landon U. Lynt, 78, head of Little Falls Mfg. Co., Little Falls, N. Y., until the mill was sold recently, died Oct. 4. He was an honorary life member of the Underwear Institute.

Henry Warren Bliss, 86, retired president of Massachusetts Mohair Plush Co., which he founded in 1892, died Nov. 1 at Chestnut Hill, Mass. He was born in Cambridge, Mass., and was graduated from Harvard in 1884. He is the father of Henry M. Bliss, president of the Pacific Mills, Boston, and of the Massachusetts Mohair Plush Co.

Edward J. Nugent, 51, manager of Wamsutta Mills and president of Wamsutta Sales



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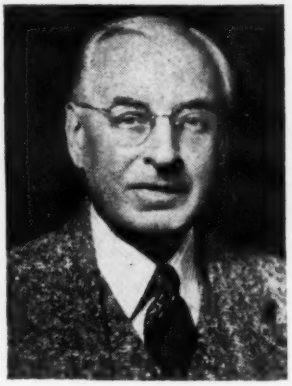
GREENVILLE, S. C. FALL RIVER, MASS.

Corp., died recently in Boonton, N. J.

Howard Segar Neiman, 79, honorary secretary of the American Institute of Chemists, New York, and patent attorney for many years, died Oct. 31. From 1918 to 1944, he was editor and publisher of the *Textile Colorist*. He was active in the dyestuffs industry and made 26 trips to Europe in connection with the early study of dye production and application. He was a member of the American Chemical Society from 1893 until his death.



Howard Segar Neiman

Charles G. Aveyard, retired textile executive, died Oct. 19, at Lowell, Mass. He went to Lowell from Sanford, Me., many years ago and with a small group started what is now the Massachusetts Mohair Plush Co. He served as superintendent of the mill until his retirement several years ago.

Vernon E. Royle, president of John Royle & Sons, Paterson, N. J., died recently.

J. Harry Baumgarten, 64, treasurer of North American Lace Co., Philadelphia, and in charge of production of the lace-curtain division, died recently. He had been with North American since its founding 40 yr. ago, and before then he had been in employ of the Bromley interests for 10 yr.

John D. Allen, Jr., 30, co-owner of the Fiber Cord Co. of California, Los Angeles, Calif., died in early October.

William Deacon, 81, founder and co-partner of Roosevelt Worsted Mills and originator of a system of spinning fancy yarns on ordinary spinning frames, died Oct. 10 at Philadelphia, Pa. He retired 12 yr. ago.

George V. Upchurch, 44, Athens, Ga., head of the textile machinery firm of C. L. Upchurch & Sons in Bogart since 1936, died Oct. 29.

Nils Adolph Newberg, 56, director and treasurer of Bianchini Ferier, Inc., New York, died Oct. 29. He was at one time a director of Vaucanson Silk Mills, Port Jervis, N. Y., a subsidiary of Bianchini.

Bruno Howard Keller, 47, Willimantic, Conn., chief accountant for American Thread Co. in Willimantic for the last 10 yr., died Oct. 23. Mr. Keller had been in the employ of the company for 30 yr. and spent 20 yr. at the Holyoke, Mass., plant.

B. S. Mills, 61, formerly secretary of Judson Mills, Greenville, S. C., and more recently an accountant, died Sept. 4.

James H. Bunting, 65, former head designer for Susquehanna Mills, Inc., Paterson, N. J., died recently. Mr. Bunting held that position for the last 32 yr.

Arthur A. Belville, associated with Bemis Bros. Bag Co., Boston, Mass., died recently. Mr. Belville had served for the last 30 yr. as cotton-goods buyer.

Clarence D. Bradford, 62, office manager of Plymouth Cordage Co., Plymouth, Mass., and for 45 yr. an employee of that organization, died at Plymouth on Oct. 26.

William H. Pickard, superintendent of the old Plaidville Mills, Randleman, N. C., died Oct. 30.

T. M. Crowell, 78, a former superintendent of Paola Cotton Mill, died Nov. 2 in Statesville, N. C.

Walter R. Lawson, of Richmond, Va., formerly employed at the Ampthill rayon plant of E. I. du Pont de Nemours & Co., died late last month.

Nelson D. Keables, 89, former mechanical superintendent of Massachusetts Cotton Mill, Lowell, Mass., died in that city on Oct. 21.

Joseph Collum, 86, Southbridge, Mass., retired foreman machinist at the old Hamilton Woolen Co., died Oct. 13. He retired in 1930.

Joseph C. McCormack, 68, Wheelwright, Mass., office manager for Wheelwright Mills, died Oct. 20.

STANDARD

Silicates of Soda

ALKALI

Produced at
Five Conveniently Located Plants:

CINCINNATI, OHIO
JERSEY CITY, N.J.
LOCKPORT, N.Y.
MARSEILLES, ILL.
DALLAS, TEXAS

DIAMOND ALKALI COMPANY
STANDARD SILICATE DIVISION
General Offices • PITTSBURGH 22, PA.

PENICK & FORD, LTD., INCORPORATED

CORN STARCHES, DEXTRINES, GUMS, CORN SUGARS & SYRUPS
NEW YORK, N. Y. - - - - CEDAR RAPIDS, IOWA
SOUTHERN OFFICES: ATLANTA, GA. - - - - SPARTANBURG, S. C.

John:
Penick and Ford's Starches and Gums for sizing Corduroy warps insure dependable weaving and maximum cutting efficiency. Let's try the type they recommend. Jim

WE'VE LEARNED A LOT IN OUR 50 YEARS

50 years of specialized experience in producing tanks and tubs for the textile industry *has taught us some things that will be valuable to you!*

Let us tell you about our complete Caldwell Service, which includes Stainless Steel-lined tanks and tubs — round, rectangular and special shapes.

Catalog on request.

W. E. CALDWELL CO.
INCORPORATED
2060 Brook St. Louisville, Ky.

Caldwell TANKS and TOWERS

D. R. KENYON & SON

RARITAN, N. J.

MACHINERY
TENTERING
and DRYING

When You Change Your Address . .

It will help us keep your copies of TEXTILE WORLD coming to you each month if you will promptly advise us of any change of address.

Director of Circulation,
TEXTILE WORLD,
330 West 42nd St., New York 18, N. Y.

Please change the address of my Textile World subscription.

Name .....
Old Address .....
New Address .....
New Company Connection .....
New Title or Position .....

ROME SOAP MFG. CO.

WRITE US FOR SAMPLES AND QUOTATIONS

MANUFACTURERS OF
Textile, Laundry
and
Special Soaps
ROME, N. Y.

One of a series *of messages to help you increase your understanding of business paper advertising, and its effect on your business.*

Maybe "more production" isn't the answer to all our problems

AMERICAN INDUSTRY is already producing at almost double its pre-war rate. Yet with labor and material costs at an all-time high, the experts insist that we must produce still more goods, faster, more efficiently, if we are to avoid another boom-and-bust cycle.

We'll buy that—as far as it goes.

But let's never lose sight of the fact that production is only half the problem. Because for every increase in our rate of production, there must be a comparable rise in our *rate of sales.*

Actually, of course, there is no such thing as producing goods at a profit. Goods are *sold* at a profit—yes. And while production line savings are vitally important, it is of equal importance to keep down the cost of *manufacturing sales.*

That is the function of *mechanized selling*—to produce sales on a mass production basis, and at the lowest possible cost per unit. Translated into more familiar terms, it simply means advertising to the right market, in the right way, at the right time.

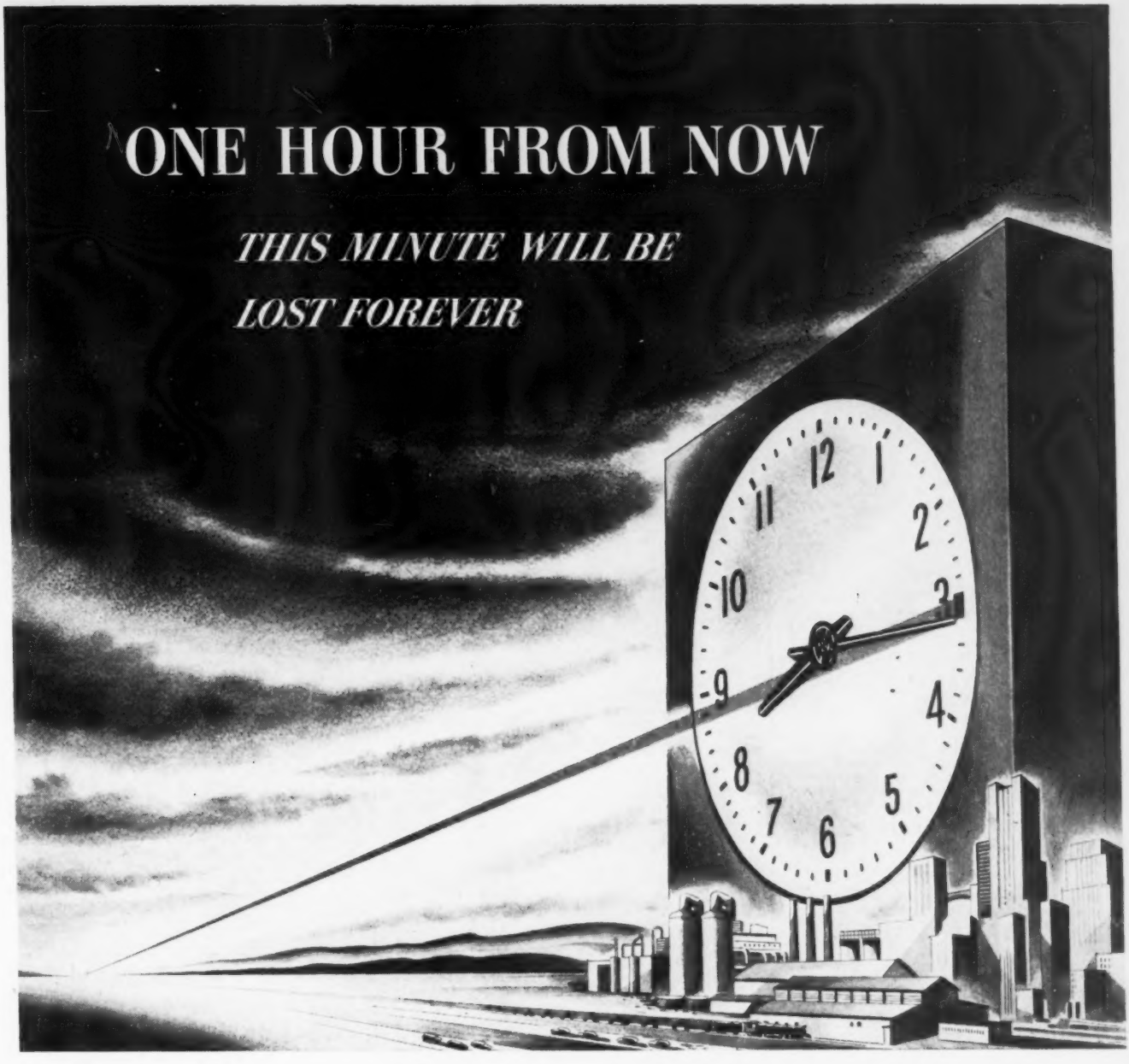
Like the machine on the production line, good advertising is a multiplier of men's efforts, for it enables us to produce (and *earn*) far more than we could alone. And when it goes to work in business papers — with their tremendous concentration of hand-picked readers—advertising becomes the most efficient machine at our disposal for *manufacturing sales at a profit.*

What are the ten ways to measure the results of your business paper advertising? You'll find the answers in a recent ABP folder, which we'll be glad to send you on request. Also, if you'd like reprints of this advertisement (or the entire series) to show to others in your organization, you may have them for the asking.

THE ASSOCIATED BUSINESS PAPERS ABP MEMBER

TEXTILE WORLD

is one of the 129 members of The Associated Business Papers, whose chief purpose is to maintain the highest standards of editorial helpfulness—for the benefit of reader and advertiser alike.



This is the minute lost between 8:15—starting time—and 8:16, the time the starting bell rang. This is the minute lost when the clock at the entrance did not agree with the clock in the shop. This is the minute lost one morning only. Are you and your employees losing another minute at noon and another at closing time? Every day? Multiply this minute by days, weeks, and months of minutes. Such lost productive time represents a real and constantly increasing loss in money.

Efficient, uniform control of time can save the critical minutes of the day. Synchronize your time indicating, signaling, and recording units so that when it is 8:15 on the indicating clock, it is 8:15 on the attendance time recorder, and 8:15 by the starting bell.

An IBM Self-regulating Master Time Control is designed for this specific purpose—it establishes and maintains an accurate standard of time for your entire organization.

IBM

TIME RECORDERS AND ELECTRIC TIME SYSTEMS

Proof Machines • Electric Punched Card Accounting Machines and Service Bureau Facilities • Electric Typewriters

International Business Machines Corporation, World Headquarters Building, 590 Madison Avenue, New York 22, N. Y.

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:

60 cents per line, minimum 4 lines. To figure advanced payment count 5 average words as a line.

POSITIONS WANTED (full or part-time salaried employment only), ½ above rates.

PROPOSALS, 60 cents a line an insertion.

INFORMATION:

BOX NUMBERS care of publication New York, Chicago or San Francisco offices count as 1 line additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED RATE:

The advertising rate is $6.75 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. T.W.

NEW ADVERTISEMENTS received by 10 A. M. December 18th will appear in the January issue, subject to limitation of space available

MEN WANTED

POSITIONS OPEN

We can place SUPERINTENDENTS, assistant superintendents, designers, assistant designers and stylers woolen and worsted mills; superintendent worsted scouring, carding and combing; manager screen printing plant; assistant superintendent woven label plant; worsted yarn superintendent.

SUPERINTENDENTS for the following mills: sweater, cotton yarn, worsted cloth, woolen cloth worsted and woolen yarn, underwear sewing plant, sheet and pillow case manufacturing, assistant superintendent woven felt mill, assistant superintendent cotton spinning mill So. America.

OVERSEERS for the following departments: worsted drawing and spinning, knitting sweaters and underwear, examining silks, rayons and acetates, woolen and worsted finishing, dyeing and finishing rayon and acetate fabric, sisal carding.

SECOND HANDS FOR THE FOLLOWING DEPARTMENTS: dyeing, worsted spinning, woolen and cotton carding, worsted weaving, fulling and scouring.

OVERSEERS and second hands for cotton carding, combing, winding, spinning, weaving, slashing and drawing-in, So. America.

MASTER MECHANICS, plant engineers, chief power engineers, structural engineers, designers and draftsmen.

SEWING MACHINE FIXERS; chemists, colorists and laboratory men; woolen, silk and cotton mill loom fixers; section hands for worsted spinning and drawing; komet hosiery fixer; perchers or cloth examiners $50-80; textile school graduates and technicians for positions in New York City; chemical salesmen and demonstrators; garnett men; two chemists with Ph. D. degrees; man for back washing and gilling; full-fashioned hosiery machine fixers; cotton slasher tender; assistant designer worsteds.

We invite correspondence (confidential) with mill executives seeking new positions and employers seeking new executives.

Over 50 yrs. Con. Empl. Service for Textile Mills.

CHARLES P. RAYMOND SERVICE
(Incorporated)
294 Washington St., Boston 8, Mass.

IMPORTANT

BELGIAN MANUFACTURER

of high class knitwear for ladies, men and children

wishes to establish contacts with first class buying agents able to distribute his goods in the U.S.A.

Only well-established firms with sales organization and clientele interested in high class goods will be considered.

RW-3096, Textile World
330 West 42nd Street, New York 18, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

WANTED—MAN to head sample production department in Phila. narrow fabrics plant. Special narrow fabric experience not necessary. Should have training and experience in weaving and fabric construction. Loom fixing know-how desirable. P-2861, Textile World.

MALE HELP wanted. Sewing Room Foreman, experienced on knitted underwear, cotton, cotton-and-wool, and rayon fabrics. When replying, state salary expected, to P-2982, Textile World.

WANTED: DYEING and finishing foreman for cotton and rayon piece goods. Good salary to right man. Modern plant in Piedmont, North Carolina. Nationally-known organization. P-3026, Textile World.

WANTED-EXPERIENCED dyer and bleacher interested in a one or two month vacation in the West Indies. We need a man who can straighten us out on some of our finishing problems, and would be glad to pay a liberal salary for this technical advice. The job will not take more than 30 to 45 days, in our opinion. If interested, write P-3021, Textile World.

CHENILLE SUPERINTENDENT: Interested in young man with Chenille Manufacturing and Finishing experience. Give full details and salary desired. P-3077, Textile World.

(Continued on page 302)

WANTED MAN

25 to 35 Years Old

With technical training and some experience in plant operations.

To train for position of assistant to plant superintendent.

Plant doing Bleaching, Mercerizing, Dyeing & Finishing of cotton piece goods.

P-3169, Textile World
330 West 42nd Street, New York 18, N. Y.

DRYCLEANING AND TEXTILE

CHEMIST

(MAN OR WOMAN)

MUST HAVE MINIMUM OF BACHELOR'S DEGREE IN CHEMISTRY OR ENGINEERING INCLUDING TEXTILE TECHNOLOGY. COMMERCIAL DRYCLEANING EXPERIENCE REQUIRED; COMMERCIAL LAUNDERING EXPERIENCE DESIRED. LABORATORY AND PLANT DEVELOPMENT WORK; POSITION CARRIES TECHNICAL RESPONSIBILITIES FOR SEVERAL SPECIFIC PROJECTS ABOUT TO BE INITIATED. PERMANENT POSITION WITH EXCELLENT STARTING SALARY.

REPLIES CONFIDENTIAL. LIKELY CANDIDATES WILL BE INTERVIEWED AT OUR PLANT (EXPENSES PAID). IN BUSINESS OVER SIXTY YEARS. LIVING ACCOMMODATIONS AVAILABLE.

P-3189, Textile World
330 West 42nd Street, New York 18, N. Y.

WANTED

TEXTILE FOREMAN

Must have experience both in coning of rayon yarn from cakes, as well as soaking of rayon cakes for throwing. Position is temporary but interesting for experienced man who wants to spend few months in South America at good salary.

P-2594, Textile World
330 West 42nd Street, New York 18, N. Y.

WANTED

MANAGER

FOR

UNDERWEAR PLANT

Nationally known ladies' underwear company needs experienced manager for Plant in the South.

Desire man not over 45 with at least 8 to 10 years experience including cutting and sewing. Experience in South preferred but not essential. Excellent future for a man with initiative. State personal data and experience in detail.

P-3073, Textile World
330 West 42nd Street, New York 18, N. Y.

Instructor Wanted

A man who has had experience in knitting and who is familiar with raw material processing is needed in one of the new technical institutes being established by the State of New York.

Apply to

PAUL B. RICHARDSON, *Director*
N. Y. State Institute of Applied Arts and Sciences
P. O. Box 525 Utica, New York

Superintendent

For Pillow Case Manufacturing factory.

P-3137, Textile World
330 West 42nd Street, New York 18, N. Y.

Here is a page of genuine PROFIT OPPORTUNITIES

- Whether you are looking for a complete mill or a single machine.
- We also offer experienced service in problems of liquidation or transfer of ownership—

1—72" C&M 2-cylinder Brushing machine
3—Button Breakers 2-48", 1-50"
1—45" Textile Finishing Machine Co. 6-bowl Calenders
1—54" x 60" D&F 2-cylinder iron Shoddy Cards with feeders
1—Lot Numerous Card Parts
1—41½" Knit goods calender stainless steel rolls with motor Reeves drive
1—65" C&M Dewing Machine, motor driven
1—64" P&W Doubling & Rolling-up Machine with clock
1—Set 8 Textile Vertical 48" x 23" Copper Dry Cans
1—18" Copper Basket Extractor
2—26" Tolhurst Extractors, belt driven
1—32" Tolhurst Copper Basket Extractor
3—60" Tolhurst Copper Basket Extractors
1—45" Dobson Barlow Cotton Feeder
3—40", 42" E&H Flat Folders with take-up stands
1—Rodney Hunt M3, 2 string fulling mill, belt driven
14—40", 48", 60" card and Napper Grinders
200—40" Draper Model K 20 Har Dobby Looms
110—45½" reed space Model E Draper Automatic Looms with lacey tops 3 bank stop motions, warm take-up, belt driven
1—48" C&K 4 x 4 box Loom, 25 harness, belt driven, friction clutch
12—54½" C&K Box 20 & 25 Harness Dobby Looms
32—54" R.S. C&K 4 x 1 Auto. Looms, 20 harness double index dobby head
2—74" Heavy Duck Looms, roller top
14—82" C&K 2 x 1 automatic Looms, 8 harness cam motion, motor driven
10—92" C & K. 4 x 1 Automatic Looms, 8 Harness, Cam Motion, Motor Driven
16—92" & 100 C & K 2x2 Box Auto. Looms with Baker 3-mix attachments, 25 harness gem heads
8—100" & 110" C&K 4 x 4 Box Looms, 25 harness, belt driven
1—64" P&W Measure & Winder

COMPLETE MILL UNIT

Profit Opportunities

* A Six Set Woolen Yarn Mill
* Fourteen Set Woolen Yarn Mill
* A Woolen Piece Goods Finishing Plant
* 3400 Spindle Bradford System Worsted Spinning Mill
* Six Loom Weaving Plant for Plastics or Wool — 110" C&K 4 x 4 25 harness Looms, with accessory equipment
* 5208 Spindle Cotton Mill, equipped with 24 Cards and Foster #101 Winder. Priced for quick sale.
* 15,000 Spindle Cotton Mill with reconditioned machinery, including 61 Cards, Auxiliary Equipment and Winders
* 30 Loom Label Weaving Mill
* Complete Engraving Equipment for Textile Printing Cylinders with 15 Pantograph Machines

MANY OTHER UNITS WITH PROFITABLE PRODUCTION POSSIBILITIES. PLEASE OUTLINE YOUR REQUIREMENTS.

SEND FOR COMPLETE DETAILED LIST OF MACHINERY FOR SALE

3—66" P&W 60 & 100 yd. Measuring Machines, belt driven
3—60" Measuregraph Machines
1—70" King Gerber Tubing Machine with Veeder-Root counter
1—12 Pole Smith Drum Skein Mercerizer
2—240 Spindle J&B 1¾" gauge Mules
1—392 Spindle Smith 2" Gauge Mule
2—240 Spindle J&B 2" gauge Mules
110—New Leland & Westinghouse ½ and 1 HP 3/60/220 V Heavy Duty Motors. Also various size Rebuilt Motors.
1—61" Woonsocket 2-cylinder Napper, 20 rolls to each cylinder
1—66" Gessner 16 roll single cylinder Napper
1—72" Gessner 18 roll single cylinder Napper
3—80" D&F 20 roll Single and double Acting Nappers
1—30 x 30" Mezzera Wool Opener
1—50" Padder two rubber rolls with barrel expander, motor driven
1—76" Birch Measuring Perch, ceiling type
1—19" Tatham Rag Picker
9—40" Kitson Breaker Pickers, Finisher Pickers, and Single Proocess Pickers, motorized
2—48" C.D. Sargent Burr Pickers
1—60" R.B.F. 3 color Printer M. Dr.
6—52", 65½, 66, Voelker and Gessner Single and Double Bed Rotary Cloth Presses
1—44" Quetch one rubber and one brass roll, stainless steel box, expansion pulley, motor driven
3—50 spindle Lindsey-Hyde Adjustable Reels
5—82", 92", 96", and 100" D&F Pin Type Reels, with creel, hack stand, neck reed, warp reel beamer and warp compressor
1—60", C&M Single Blade Plush Shear
2—60" P&W Single Blade Woolen Shears
1—66" Parks & Wilson single Blade Shear
11—65½" P&W 2-blade Shears
1—76" C&M Double Blade Shears
1—80½" P&W Single Blade Shears
1—32" Grand Rapids 2-knife Knit Goods Slitting Machine
1—42" Grand Rapids 20-knife Slitting Machine
1—42" C&M Singer with hood
3—Lowell 2' cylinder Slashers
1—32½" D&F Jack Spool Winder
6—48 Smith and Furbush Spoolers, 44" drums, ends, 44½" long spools with 10" head, with spool stands
1—60" C&M Single Brush Type Tiger
3—80 Spindle Hopedale band driven twisters 4½" ring, 5½" ga. Belt driven
1—210 spindle Draper Twister, 2" ring
1—208 spindle F & J tape driven wet Twister 2¼" ring, 3½" ga., motor driven with approx. 3000 bobbins
2—8-string Hemmer Wool Washers
1—80 Spindle Foster Tube Winder
9—100 Sp. Foster Model 12 12A-21A Tube & Cone Winders
4—80 and 90 Sp. Foster Model 30 Cone Winders

Send us your list of surplus equipment

MACHINERY LIQUIDATING COMPANY

A Dealer of Recognized Reliability

31-33 West 42nd Street NEW YORK 18, N. Y.

DOMESTIC TELEPHONE PEnnsylvania 6-8014 EXPORT

WAREHOUSES: Paterson, N. J., 9 Godwin St., Tel. SHerwood 2-0373—Hawthorne, N. J., 35 4th Ave., Tel. HAwthorne 7-9661

SPECIALISTS IN SELLING AND PURCHASING TEXTILE MACHINERY, ACCESSORIES AND MILL SUPPLIES

SEARCHLIGHT SECTION

EXCELLENT FINISHING EQUIPMENT

1—W&J tenter frame, 40' x 50" width
1—set 17 dry cans, 62" width
16—Stainless Steel dye jiggs, 50" width, individually driven
2—VV button breakers, 50" width
1—P&W. semi-decator, 45", pump, motor, etc.
4—sets squeeze rolls, rubber rolls, 18" x 18"
1—National loop dryer, 27' long, 10' high, 86" wide
1—Woonsocket Napper, 84" width, D.A. 36 rolls
2—Roy Napper grinders
1—Woonsocket shearing machine 66" width
2—Centrifugal extractors, 48", top motor
12—Hope pantograph engraving machines, 50"
1—4 roll Calender, 90" width, rolls recovered
1—3 roll VV Calender, 50" width

1—RBF 5 color, 60" printing machine
1—3 color print machines, with 15' Ager.

COMPLETE MILLS

1—28,000 Spinning and Weaving mill, cotton
1—6,696 Spinning and Weaving mill, cotton
1—3,985 Spinning mill, cotton
1—27,000 Spinning mill, cotton

WORSTED & WOOLEN

1—1,000 Spindle worsted spinning
1—600 spindle woolen mill

CARDING, SPINNING, & WEAVING

30—H&B cotton cards, 40", 10" coilers
2—sets D&F 3 cylinder 48" x 48" woolen

SPINNING

10—Whitin 2½" ring, 3" gauge, 224 spindles
40—F&J 2¼" ring, 3" gauge, 204 spindles
15—F&J frames, with Whitin Casablanca long-draft, 3" gauge, 2" ring, 252 spindles
4—Atwood 5B doublers, 100 spindles each
6—Woonsocket Speeders, 7 x 3½", 130 spindles
3—Woonsocket slubbers, 12 x 6" 68 spindles
14—Woonsocket intermediates, 8 x 4", 152 spindles
4—Universal # 90
3—Foster # 30 100 spindles each

WEAVING

4—Draper Model X, 60"
230—Draper Model E, 40"
20—C&K 4 x 1, 52", 20 harness
122—Stafford, 1 x 1, 20 harness 51½" between swords
4—C&K 4 x 1 Auto, 92", motor Dr.
100—Draper Model K, 40"
15—Narrow Fabric Looms

MISCELLANEOUS

56—Whitin Combers, 10" coilers
6—Whitin Sliver Lappers 9¾"
4—Cotton Slashers, 7' x 5' cylinders
1—Van Vlaandren 7 can slasher 54" wide, 24" Dia.
4—60" Tubers and Doublers

ALWAYS AVAILABLE

Picking, Spinning, weaving, and finishing equipment. Knitting machines, tanks, kettles, supplies for all needs.

REMEMBER

Republic Textile EQUIPMENT COMPANY

40 WORTH STREET NEW YORK CITY

Purchase and Sale of Used Machinery

REFINANCING • APPRAISALS • PURCHASE • SALE • LIQUIDATION OF MILL PROPERTIES

We Are Offering for Immediate Delivery

1—50" 3 roll V. V. Calendar
1—60" 3 roll K & G Calendar
1—50" 2 roll ball bearing Quetch
2—50" Werner Dye Jiggs S. S. lined
2—56" Morrison enclosed gear copper lined Dye Jiggs
2—54" General enclosed gear S. S. line Dye Jiggs
1—set of 9—20" x 60" Heavy Steel Dry Cans
1—50" V. V. Button Breaker
1—36" motor driven self balancing Hercules Extractor
1—Motor Driven 20" Bock Extractor, reconditioned
2—60" motor driven beamers
3—60" motor driven Tubing & Measuring Machines
30-60 gallon copper Steam Jacketed Kettles
2—motor driven 84 spindle Fletcher Duplex Machines
2—No. 50 Universal Coners
1—U. S. 7½ H. P. Vari-drive #2, 3, 4 Reeves Drive
About 5,000 S. S. high speed V. V. Clips
Agitators of various sizes
Motors of various sizes
New & Used Electric Hoists.

Can Be Inspected at Our Warehouse

SHerwood 2-7666-7 LAmbert 3-0275

DOMESTIC Moe Blank EXPORT

TEXTILE MACHINERY

523-525 E. 18th ST. PATERSON 4, N. J.

L. J. McCAFFREY & SON, INC.

FOR SALE

All merchandise listed in this ad is owned and stored at our warehouses.

2400—Rabbeth Spinning Spindles, Bolsters, and Bases, 7" Traverse
5000—Worsted Spinning Spindles, 20½"—7/16" Dia.
5320—Worsted Spinning Caps, 7½" x 2"
16,000—Spinning Bobbins, Worsted, 8¾" O.A.
10,000—Maple Wood Cones, 6¾" O.A. x 2⅝"
100—Galvanized Bobbin Cans, 27½ H. x 12" L. x 8" W.
1500—Heddle Frames 66" (12" Heddle)
250,000—Flat Steel Heddles 12", ⅜" eye
Lot Universal Winder Parts for #50 & #90
2—G.E., 3 H.P. Motors, 550 V, 1200 R.P.M.
2—G.E., 2 H.P. Motors, 550 V, 1200 R.P.M.

WANTED TO BUY

Send Listings of Anything You Have For Sale.

P.O. Box 495 Pawtucket, R. I.

HOSIERY MACHINES

used and rebuilt

KNITTERS—RIBBERS—LOOPERS—
CYLINDERS—DIALS—TRANSFERS
HOSIERY NEEDLES AND PARTS

JOS. BRESANI
N. W. Cor. Hancock & Somerset Streets
Phila. 33, Pa.

FOR SALE

2 Davis & Furber 48" Triple Apron Condensers with 20" Iron Ring Doffers
1—#90 Universal Filling Winder

YANTIC WOOLEN MILLS, INC.
YANTIC, CONNECTICUT

FOR SALE

PLEATING MACHINES

1—60"-Comb. Ser. #F-215
1—24"-Crystal Ser. #VK-27A

Both Chandler—In Excellent Condition—Including New Steam Boiler—and Used Copper Steam Box.

LOCATED IN WASH., D. C.

FS-2728, Textile World
330 West 42nd Street, New York 18, N. Y.

Continuing the old custom well into our second quarter-century

"Consolidated" extends Season's Greetings and Heartiest Wishes for a Prosperous New Year

Also, a number of Complete Plants for every phase of the Textile Industry.

4—P-S & Halls & Stells Draw Boxes.
36—C & K 92" 4 x 1 automatic Looms.
12—C & K 4 x 4 65" Looms.
14—New Whitin 40" Cards, 12" coilers.
3—D & F 3-cyl. 60" x 48" Iron Cards.
1—D & F 3-cyl. All Iron 48" x 48" Card.
2—Proctor & Schwartz Sample Cards.
3—D & F Mules, 288 & 375 spindles.
10—Whitin Twisters, 208 sp. 3¼" gau. 2½" ring.
4—D & F Woolen Frames 192 sp, 4½" gau.
5—Saco-Lowell Worsted Spinners, 288 sp.
6—C & K 72" Worsted Looms, 4 x 4.
20—Saco-Lowell & H & B Drawing Frames, 4 x 6 deliveries, 12" coilers.
2—Collins Trap Worsted Twisters.
2—Prince-Smith Twisters, 180 spindles.
1—Barber-Colman Warp Tying Machine.
60—Draper D 76" Looms, gem heads.
5—Draper x 40" Looms, with motors.
50—Draper x 60" Looms, with motors.
15—C & K 72", 76" Jacquard Looms.
3—Tape Condensors, 60" & 48".
17—Stafford Worsted Looms, 72", 82".
1—Hunter Lapper.
NEW Tubers, Beamers, Batchers.

SINGLE COLOR 44" PRINT MACHINE, WITH 60' DRYING UNIT, DRIVES. MOTORS AND 27 COPPER ROLLERS.

1—V.V. Caustic Washer with G.L. Units.
1—Buhlman 120-arm Dyeing Machine.
1—Set 21 copper Cans, 88" face.
1—R. B. & F Single Color 50" Print Machine.
1—Butterworth 60" Clip Tenter Frame.
4—Whitin High Speed Tricot Machines.
2—Hussong Skein Dyeing Machines.
1—Tolhurst 60" Under-slung Extractor.
2—V. V. 65" S. S. Dye Jiggs.
1—Franklin Dyeing Machine.
2—Obermaier 500# Package Dyers.
4—Carbonizer Dryer Feeders, 60".
1—Complete Pantagraph Engraving Unit.
NEW Stainless Steel Dye Becks.
NEW Stainless Steel Dry Cans.
1—P & S 90" Airlay Dryer.
1—Birch Bros. Cloth Dryer.
1—Proctor & Schwartz Wool Dryer.
1—R. B. & F. 5-color 42" Print Machine.
1—4-color 60" Print Machine.
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10 x 4½ Cotton Roving Frame
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Saco-Lowell Frames
Enough to equip 2000 Spindles
1944 to 1945 Models
This includes all parts above the beam except Top Rolls, Trumpets & Operating Levers.
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ITEM N-H

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ITEM H-R

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EXTRACTORS, Beam 50" & 60" BB
EXTRACTOR, K & G 48", rubber lined basket
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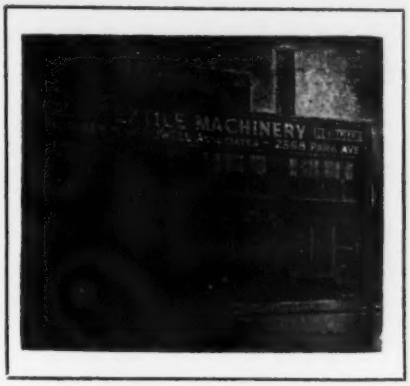

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Automatic Hopper Feeders
1st Cylinder #26 wire
6 workers, 6 Strippers, Lickerin, Angle Stripper, Fancy, Doffer, Apperly Intermediate Feed.
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60—DRAPER E 28" 2 harness.
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250—DRAPER K 40" and 42" 25 harness.
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1—40' 50" Palmer Tenter Unit—complete with housing and heating units, with Reeves and motor.
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1—Proctor & Schwartz 5 Fan Loop Dryer, complete with revolving sticks 88" wide. Reeves and motors. This dryer has five extra Booster Fans.
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1—Set 17 Textile Vertical Copper Dry Cans, 23" x 50" face, complete with #2 Reeves and 3 phase motor, 10 HP.
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36—55" RS, C & K 4x1, 25 harness dobby double index, motor-driven loooms.
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5—Entwistle Long Chain Beaming Machines.
3—Smith Drum Skein Dyeing Machines, monel metal, 12-7 and 3 spindle, motor driven.
1—Proctor & Schwartz Skein Dyeing Machine, conveyor type, automatic temp. control.
1—P&S Package Drying Machine, 4000 lbs. capacity with 10 h.p. motor.

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15 Jigs—6 of them Van Vlaanderen, 3 Henniken and 6 Morrison. The Van Vlaanderen hooked up in series of 3, driven by 3 h.p. motor. The balance are individual drive.

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All individually motorized 3 HP, 3 phase 220-440 volts, 60 cycles, 84 spindles, 5¼" spacing, 3⅛" Whitin rings, double 2" feed rolls. Excellent condition. Bobbin Equipment with machines.

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All individually Motorized 2 HP, 3 Phase, 440 Volts, 60 cycle motors. Bobbin Equipment with all machines.

4—100 spindle, 5¼" spacing, 3" Eadie rings, single 2" feed rolls.

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4 #90 Universal Winding Machines

Individually Motorized, 20 spindles each, 2 with Bunch-builders and Tensions for Cotton or Wool.

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4—80 spindle machines and 3—70 spindle with 6⅛" centers, 3½" wide cork covered take-up pulleys, 4½" diameter motor pulleys 3 HP General Electric motors with starting switches. 220-440 volts, 80 cycles. Machines in excellent condition. *Excellent Bobbin Equipment. Available for These Machines at Low Cost.*

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1—60" Fletcher — Motorized
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3—Sipp Eastwood 160 splindles, oilless bearings.
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50,000—7" Quills for # 90 Winders. Like new

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15,000—2 5/8"	Fiber Head	5-B Spinner	4 1/2" Trav.
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12,000—3 1/2"	Fiber Head	Winding	4 3/4" Trav.
300,000—2 1/2"	Fiber Head	Winding	3 1/2" Trav.
85,000—3"	Metal Head	Winding	3 5/8" Trav.
100,000—2 1/4"	Fiber Head	Winding	3 3/8" Trav.
5,500 New Wire Reels, 9" Head, 7 3/4" Trav., 3" Bar			
30,000—2 5/8"	Fiber Head	Winding	5" Trav.
30,000—2 5/8"	Fiber Head	Winding	3 9/16" Trav.
13,000—2 1/2	Fiber Head	Winding	3 7/8" Trav.
15,000—3 1/2"	Wood Head	Winding	6" Trav.
5,000—4"	Wood Head	Winding	6" Trav.
40,000—2 1/4"	Fiber Head	Winding	3 1/2" Trav.
9,000—2 3/4"	Bakelite Head	Steaming Shaft	3 3/16" Trav.
10,000—2 3/4"	St. St. Head	Loose Pin Steaming Shaft	3 3/16" Trav.
6,000—2 3/4"	Al. Head	Hol Gudg. St. Shaft	3 1/4" Trav.
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1,200—Whitin 5B Rings—3⅛" Diameter
2,000 Brugger Swifts for Silk or Rayon
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WAY BELOW MARKET PRICE

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1—Foster Model #30 60 sp. Coner, Mtr. Dr.
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BRAIDING, TWINE AND ROPE MACHINERY
38 W. HOUSTON ST. TEL. SPRING-7-2621 NEW YORK, N. Y.

Idle Surplus Equipment is a DOUBLE Expense

—it represents both inactive capital and wasted space.

—it generally depreciates in value with age.

Sell the equipment you have no further use for—NOW!

Readers of "Textile World" may want just what you no longer need. You can bring your surplus equipment to their attention — at small cost—through advertising in the

SEARCHLIGHT SECTION of "TEXTILE WORLD"

The recognized centre for the advertising of Employment, Equipment and Business Opportunities in textile mills. See the Searchlight Section of every issue.

EAGLE INDUSTRIES, INC. *Offers*

THE FOLLOWING EXCELLENT COMPLETE MILLS AND MACHINERY

"SPECIAL"

COMPLETE COTTON MILLS

1—6,000 Spindle Spinning
1—17,000 Spindles; 10,000 Twister Spindles
1—36,000 Spindles; 12,000 Twister Spindles
1—6,800 Spindles; 250 Looms
1—7,000 Spindles; 52 Looms

RAYON PLANT

48—Crompton & Knowles 4x1 Box Looms
39—Stafford Automatic Plain Looms
14—Draper built Stafford automatic Plain Looms
With all auxiliary equipment for complete mill.

COMPLETE WOOLEN and WORSTED MILLS

1—3 Set Card Woolen
1—800 Spindle Worsted Spinning
1—4 Set Bradford Worsted Spinning
1—2 Set Mill Woolen

1 — COMPLETE TEXTILE, SCREEN PRINTING AND DYEING PLANT

COMPLETE HOSIERY MILL FOR MEN'S AND BOYS' HOSIERY

60 "C" and "K-G" Scott & Williams Knitting Machines; diameter of cylinders is 3", 176 needles.

PACKAGE DYEING PLANT, COMPLETE WITH WARP DYEING EQUIPMENT IN EXCELLENT CONDITION. MAIN ITEMS (ALL OBERMAIER MACHINERY)

1—500 lb. stainless steel unit, motor driven.
1—600 lb. dyeing machine, motor driven.
3—300 lb. dyeing machines, motor driven.
Several sample package machines.
All the above equipped with electric hoist and trolley system.

COMPLETE TEXTILE COATING AND PLASTIC PLANT WITH THE FOLLOWING IMPORTANT ITEMS

4—Coating Machines

1—Hydraulic Calendar

1—Embossing Calendar

Also mixing kettles, miscellaneous equipment.

MACHINERY

1—Sargent 4-bowl Scouring Machine
1—Sargent 2-bowl Scouring Machine
1—National Loop Dryer, 40' long, 84" wide
1—Van Vlaanderen Palmer and Quetsch Unit 66" face. Reeves drive and motor.
1—Van Vlaanderen Extractor 54"
1—Morrison Calendar, 2 paper and 1 steel roll, 50" wide, with motor.
1—Davis & Furber 60"x60" Woolen Card, with Peralta attachment.
3—Prince-Smith Twisters—188 Spindles.
Crompton & Knowles 4x4 82" and 100" non-automatic Looms.

ABOVE ALL FOR VALUE

Eagle INDUSTRIES INC.

110 WASHINGTON ST., N. Y. 6 WHITEHALL 4-7666
CABLE: EAGLENDUS

WANTED

(Additional Wanted ads on page 302)

WANTED
Used or reconditioned
EASTMAN Style 155—5¼" ROUND KNIFE CLOTH CUTTING MACHINE.
MERROW OVERSTITCHER Style 60 ADW-1.
In reply state price and condition machine being offered.
W-2836, Textile World
330 West 42nd Street, New York 18, N. Y.

WANTED
ONE BEAMING HEAD & WARP COMPRESSOR COMBINED
Made by Worcester Warp Compressing Machine Co. For rebeaming section beams on Cotton Dry Slashing system.
W-3023, Textile World
330 W. 42nd Street, New York 18, N. Y.

WANTED Universal
#50 DOUBLERS FOR TUBING
IN ANY CONDITION.
ALSO EASTON BURNHAM SKEIN WINDERS
W-3134, Textile World
330 West 42nd Street, New York 18, N. Y.

WANTED
BOX LOOMS
Draper Model O and C & K 4x1 Automatic Box Looms, not less than 100" reed space, looms should take a shuttle 17¾" long, 2⅛" wide and 1 11/16" high, 8¾" bobbin, 24" warp beam, 4 bank stop-motion, friction band let-off.
W-3007, Textile World
330 W. 42nd Street, New York 18, N. Y.

RAYON SLASHER WANTED

Late model. Johnson-make preferred. Must be in good working condition. Give particulars and price in letter to:

W-3139, Textile World
330 West 42nd Street, New York 18, N. Y.

WANTED
WILDMAN RIB MACHINES
Any Cut—Any Size
PICKFORD MILLS Inc.
601 Grand Ave., Bklyn.
St 3-5020

WANTED
PRINT MACHINE
1—60", 6-color Print Machine in good condition.
1—Color Laboratory Printing Machine
W, 3025 Textile World,
330 W. 42nd St., New York 18, N. Y.

SEARCHLIGHT SECTION

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS WANTED

(Continued from page 292)

ASSISTANT PLANT Manager: Young man with engineering background. Capable of assisting Plant Manager. Give full particulars. P-3078, Textile World.

EXPERIENCED MAN to take full charge of Rayon Piece Dyeing examining department. Preferably one with knowledge of fabric manufacturing. P-3130, Textile World.

MAN EXPERIENCED on inside work. Double Woven Machines. National firm of long established record in the knitting field. Splendid opportunity for advancement for the man who qualifies. Write Double Woven Corp. of America, Sherwood & Reeve Street, Dunmore (Scranton) Pa.

PRACTICAL NARROW Fabric man, experienced weaver, loom fixer, designer and superintendent seeks responsible position with Trimming, Woven Label or Elastic Webbing Mf. concern. PW-2617, Textile World.

DYER AND Chemist wants position as superintendent of dyeing and finishing plant or assistant superintendent of mill. Several years experience. Location no object. PW-2864, Textile World.

SUPT. OF Dyeing, Technical college graduate, age 47. 25 years experience cotton or rayon, skein or package, all types of colors. Excellent references. Would consider sales and demonstration. PW-3039, Textile World.

DEVELOPMENT, RESEARCH, sales and service engineer desires new connection. Twenty-five years experience in preparatory textile machinery, including opening, blending, cleaning, conveying and kicking machinery on cotton, rayon and blends. PW-3066, Textile World.

MILL MANAGER desires proposition. Capable of running complete small or large weaving plant. Thorough knowledge of all phases of weaving mill. Also in position to invest in interesting proposition. PW-3083, Textile World.

GENERAL SUPERINTENDENT, 45, available. Textile graduate, now and for many years employed as Superintendent, Technician and General Superintendent with reputable concerns north and south, on silk and synthetics, Shaft, Jacquard and Throwing, wishes position as General Superintendent or Manager of large plant. PW-3164, Textile World.

TEXTILE ENGINEER. Contact between main office, mills and sales with background in mill operation. Interested in new connections offering better opportunity. Experienced in development and research. PW-3161, Textile World.

JOB WANTED—Boss knitter or overseer on Wildman or Scott-Williams machines, 25 years of textile experience. PW-3175, Textile World.

SPECIAL SERVICE

TROUBLED WITH making samples or short orders? Let expert technician design and weave fabrics on his looms. SS-2764, Textile World.

TEXTILE EXECUTIVE AVAILABLE

Twenty years experience. Seven years as General Manager of a spinning, dyeing and weaving mill. Jacquard pile fabrics.

Thoroughly familiar with all phases of machinery operations and office and mill detail including costs.

Excellent labor relations background.

Age 40 Good personality

PW-3089, Textile World
330 West 42nd Street, New York 18, N. Y.

TRICOT STYLIST

EXPERIENCED IN DEVELOPMENT AND ANALYSIS OF WARP KNIT FABRICS. WILLING TO CONNECT IN FOREIGN COUNTRY IF DESIRED.

PW-3148, Textile World
330 West 42nd Street, New York 18, N. Y.

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Patent and Trade-Mark Attorney
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891 National Press Bldg., Washington, D. C.

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CASH PAID

For Capital Stock or Assets Existing Personnel Normally Retained

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1474 B'way, N. Y. 18, N. Y.

INDUSTRIAL TEXTILE APPRAISERS

Appraisals made of industrial machinery and equipment by qualified textile engineers for insurance, accounting, financial and taxation purposes.

Your correspondence invited.

ROYAL LOOM EXCHANGE
(Est. 1922)
Passaic, New Jersey

At Your Service . . .

The Searchlight Section is at your service for bringing business needs or "opportunities" to the attention of men associated in executive, management, sales and responsible technical, engineering and operating capacities with the industry served by Mc-Graw-Hill publications.

WEAVE MILL FOR SALE

(North Carolina)

Will produce 10,000 pounds (approximately 60,000 Yards) PRINT CLOTHS WEEKLY. 6,100 Spindles, 128 Looms. Combed Yarns and Broadcloth possible with Combers now ready to operate. Plenty of skilled labor. Present highly efficient management can be retained. Owners wish to retire. Inquiries solicited from principals only.

BO-2830, Textile World
330 West 42nd Street, New York 18, N. Y.

WANTED TO BUY OUTRIGHT OR INVEST

In a narrow ribbon mill 20 to 40 loom

State particulars

BO-2798, Textile World
330 West 42nd Street, New York 18, N. Y.

WANTED

(Additional Wanted Ads on page 301)

WANTED

DYESTUFFS

Chemicals—Pigments—Oils, Waxes—Solvents
Wastes, Residues, By-Products

CHEMICAL SERVICE CORP.
80C Beaver St. New York 5
HAnover 2-6970

DYESTUFFS

Will buy your surplus and obsolete dyes and chemicals for cash.

NEW ENGLAND PRODUCTS CO.
91 Oliver St. Boston, Mass.

WANTED

Package Dyeing Machine

500 lb. capacity, complete with carrier and wash tank.

W-3160, Textile World
330 West 42nd Street, New York 18, N. Y.

WANTED

TYERS

2 SAXMAYER MODEL 9 TYERS

State Condition and Price

W-3120, Textile World
330 West 42nd Street, New York 18, N. Y.

WANTED BY MILL

Due to delivery of looms

7 Can Slasher of modern construction either silk or cotton systems, delivery within six months. Give details first letter.

W-3170, Textile World
330 West 42nd Street, New York 18, N. Y.

16—Acme Wraps, 3½", 180 N., with long att. 42 gauge. (Lot #13511)
30—Scott and Williams, 3¾", 400 N., Model K, Gusset heel and toe. (Lot #16588)
30—Wildman 54 ga Full Fashion Machines, single head, single unit, round heel. (Lot #16468)
2—Supreme Jersey Machines, 20", 64 feed, 20 cut (Lot #16833)
1—Fletcher Extractor, 40", motor driven. (Lot #16973)
1—Brinton Jersey Machine, 16", 13 cut, 16 feed, motor driven. (Lot #16511)

MORRIS SPEIZMAN CO., Inc.
508 West 5th St.
Charlotte, N. C.

MILLER MACHINERY CO.
66 RAILROAD AVE. PATERSON, N. J.
Tel. Sh 2-5467-8

Used Textile Machinery and Supplies

BOUGHT AND SOLD
Warpers • Winders • Quillers
Looms

1—P. & S. Dryers—10 Fans & Motors—Revolving Sticks.
2—48" Motor Driven Extractors with balancers.
60—C & K 82" Automatic.
1—Johnson 5 Drum Slasher.
1—New 60" Tuber & Measuring Machine.
We Buy Textile Machinery for Spot Cash
A. & M. BLANK CO., INC.
49 State Street Paterson, N. J.
Sherwood 2-1367 Lambert 3-9523

FOR SALE
Repeaters, Lacers Card Cutters Jacquards of all description, also Plush Jacquards, Beamers
EUGENE SECKLER
96 No. 7 St., Paterson, N. J.

ECONOMIZER

1 — Sturtevant Cast Iron Economizer complete with accessories including 5 Diamond 2" Soot Blowers, Designed for 195 lbs. pressure, 60,000 lbs. steam per hour. Excellent buy at $2,000.00 as is.

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East Boston 28, Mass.

BRAIDERS

45—Wardwell Braiders—16 Carrier now in operation. Will sell or trade for 16 Carrier No. 2 N. E. Butts. For further information, write

SAMUEL CARUFEL COMPANY
P. O. BOX 493, Pawtucket, Rhode Island

FOR SALE
No. 1 HUSSONG DYEING MACHINE
Wood vat, lined with monel metal. Two monel propellers. Silent chain drive. Control is by switch for starting, stopping and reversing circulation. Yarn carrier is monel metal. Size 10'10"x 4'9"x3'5" deep. Complete with monel sticks. Bargain.
Write: The Du-All Mfg. Co., Geneva, Ohio

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$500,000 SURPLUS THROWING EQUIPMENT

Now in use—Being offered subject to prior sale

At Attractive Prices
For Immediate Delivery
Export packing available

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5" Gauge—80-104 spindles—Motorized—A.C.
2 H.P. 3 Phase—220 Volts—60 cycles

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ATWOOD 3 F WINDERS

ONE MILLION SPOOLS

Of the following assortment
Winding—5B and Spinning Spools
Also large quantity of metal pin boards

AIR CONDITIONING & HUMIDIFICATION PARTS

4 Taylor wet & dry bulb recorders.
16 Parks-Cramer type H.D.E. High Duty Humidifier Heads.
5 Parks-Cramer type H.H.A. Psycrostats.
12 Incomplete Bahnson Humidifier Heads.

EXTRACTORS

2 42" Fletcher Extractors with copper baskets—motorized
2 48" Fletcher Extractors with copper baskets—motorized

SOAKING MACHINES

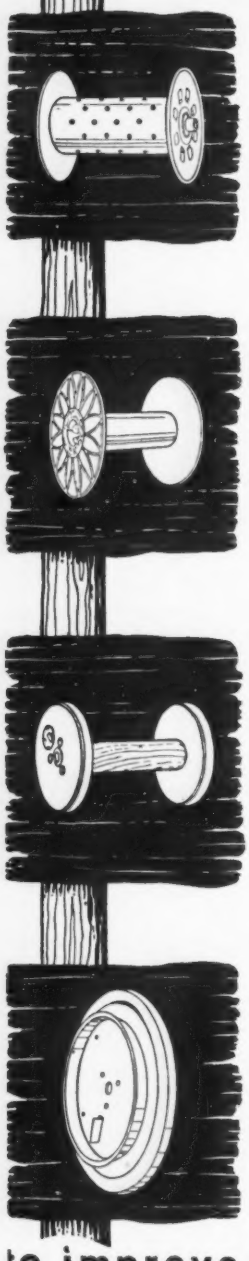
5 Franklin Soaking Machines with two kiers 5 H.P. motors with centrifugal pumps and hoist
2 American Laundry Soaking Machines—New Piston type with hoist & copper basket

Inquiries and inspection invited

Because of the rearrangement of our manufacturing facilities we are disposing of excess equipment, all in good condition . . . following the tradition established 54 years ago by Mr. Oscar Heineman, the Oscar Heineman Corporation policy of turning out high quality merchandise will be maintained and we will continue to serve the hosiery and knit-goods trade as heretofore.

OSCAR HEINEMAN CORPORATION
DIVISION OF
AETNA INDUSTRIAL CORPORATION
2701 Armitage Ave., Chicago 47, Illinois

HUBBARD SPOOLS and Related Products



STAINLESS STEEL BOBBINS

Provide extreme strength and balance. Stainless steel construction eliminates problems of corrosion and staining. Designed for steaming and similar silk and rayon processing operations.

MAGNESIUM ALLOY WARP BEAMS

The best in quality construction regardless of price. Thirty-five years of specialization in spool manufacture result in warp beams with every quality for better, lower-cost production. Warp beams made of all-steel also available.

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Resin bonded plywood head construction, metal bound with steel tire provides overall strength equalled only by toughest steel. Tire protects against chipping, burring, and warping. Available in a range of standard sizes.

LOOM BEAM HEADS

Balanced, relatively light-weight construction assures better operation and easier handling. Resin bonded plywood, metal bound with steel tire results in head of extreme strength.

HUBBARD SPOOL COMPANY
1630 CARROLL AVENUE
CHICAGO 12, ILLINOIS

to improve performance
to lower your costs . . . . . .

WRITE FOR COMPLETE INFORMATION

Hubbard

Since 1912 Manufacturers of Spools and Related Products

INDEX TO ADVERTISERS

An * Indicates additional data is in the 1946/47 Pre-Filed Textile Catalog and Textile World Yearbook

*Abbott Machine Co. 84
Aberfoyle Mfg. Co. 11
*Acme Knitting Mach. & Needle Co. 283
Aldon Spinning Mills 281
Alemite Div. Stewart-Warner Corp. 154
Allen Bradley Mfg. Co. Inside Back Cover
*Allen Co. 279
*Allis-Chalmers Mfg. Co. 7, 24
*Aluminum Co. of America 101
American Cyanamid Co. Industrial Chem. Div. 51
American Gas Ass'n 62
American Magnesium Corp. 201
*American Moistening Co. 92
*American Monorail Co. 152
*American Paper Tube Co. 202
American Rolling Mill Co. 245
American Thread Co. 284
American Viscose Corp. 211
American Woolen Co. 285
American Yarn & Processing Co. 286
*Arkansas Co., Inc. 146
Armour & Co. 221
*Armstrong Cork Co. 19
*Armstrong Mach. Co. 268
*Ashworth Bros., Inc. 38
Atlantic Rayon Corp. 248
*Atlas Electric Devices Co. 182

Bailey, Frank 282
Baldwin-Duckworth Div. of Chain Belt Co. 90
*Barber-Colman Co. 60
Barco Mfg. Co. 249
Barnes Textile Associates, Inc. 274
*Blickman, Inc. S. 273
Boger & Crawford 195
*Booth Co., Benjamin 236
Brinton Co. 285
*Brown Instrument Co. 95
Bryant Chem. Co. 70
Bunting Brass & Bronze 99
Burkart-Schier Chem. Co. 274
*Butterworth & Sons Co. H. W. 136

Calco Chemical Co. 205
*Caldwell Co., W. E. 289
*Cameron Machine Co. 287
*Carbide & Carbon Chem. Corp. 10
Carrier Corp. 18
*Carter Traveler Co. Div. A. B. Carter Inc. 306
Celanese Corp. of America 261
Century Electric Co. 77
Ciba Co. 63
Clark Tructractor Div. of Clark Equipment Co. 196
Cleveland Tramrail Div. The Cleveland Crane & Eng'g Co. 86
Clinton Industries, Inc. 180
Clipper Belt Lacer Co. 278
Cloverleaf Freeland Corp. 214
*Cocker Mach. & Fdry. Co. 52
Coffing Hoist Co. 226
*Cole Mfg. Co., R. D. 230
Colgate-Palmolive-Peet 185
Commercial Credit Co. 208
Commonwealth Color & Chemical Co. 266
Connor Eng'g Corp., W. B. 233
*Cooper Alloy Fdry. Co. 229
*Crabb & Co., Wm. 243
*Crane Co. 82
*Crane Mfg. Co. 283
*Crawford Mfg. Co. 222
*Crompton & Knowles Loom Works 42
Crouse-Hinds Co. 227

Dana Warp Mills 281
Darnell Corp., Ltd. 212
*Dary Ring Traveler Co. 254
*Davis & Furber Machine 279
*Dayton Rubber Mfg. Co. ..55, 159
Diamond Alkali Co. Standard Silicate Div. 289
Dietert Co., Harry W. 275
Dings Magnetic Separator Co. 66
*Dommerich & Co., L. F. 64
*Draper Corporation 1
Drew & Co., Inc., E. F. 175
Duesberg-Bosson of America Inc. 167
*Dupont de Nemours & Co., Duponol Dept. 203
Dyestuffs Div. 191
Electrochemicals Dept. 89
Rayon Multiple Fibers 8, 9

Edmos Products Corp. 200
Electric Storage Battery Co. ... 177
Emmons Loom Harness Co. .. 25
Eriez Mfg. Co. 161

Falls Yarn Mills 236
Felters Co., The 61
Firestone Industrial Prod. Co.. 57
*Fleishel Lumber Co. 280
Florence Thread Co. 179
Formica Insulation Co. 183
*Foster Machine Co. 54
Foxboro Co. 50
Franklin Process Co. 53
*Fuller Brush Co. 169

Gates Rubber Co., The 100
Gaylord Container Corp. 181
General Chemical Co. 173
General Dyestuffs Corp. 83
*General Electric Co. 49
General Equipment Co. 81
Globe Dye Works 225
Goodrich Chemical Co., B. F. .. 12
Gulf Oil Corp.—Gulf Refining Co. 41

Harte Co., John J. 284
Hayes Industries, Inc. 144
*H & B American Mach. Co. .44, 45
Heineman Corp., O. 282
Henderson Fdry. & Mach. Co. Div. Southern States Equipment Corp. 213
Henry, Andrew K. 228
Herrmann, Roy Dr. 236
Hinde & Dauch Paper Co., The 102
*Houghton & Co., E. F. ...78, 79
Howard Bros. Mfg. Co. 30
*Hubbard Spool Co. 304
Hunter Machine Co. Jas. 224
*Huyck & Sons, F. C. 272
Hyatt Bearings Div.—General Motors Corp. 257
Hyde Park Mills, Inc. 244
Hyster Co. 47

*Ideal Machine Shop 253
*Industrial Dryer Corp. 228
Industrial Heat Eng'g Co. 234
*Ingersoll-Rand 23
International Business Machines Corp. 291
*International Salt Co., Inc. ... 68
*Iselin Co., William 215
*Ives Co., L. T. 287

Jenkins Bros. 69
*Jenkins Sons, M. W. 192
Johnson & Hardt Co. 260
Joy Mfg. Co. 58, 59

Kahn & Feldman, Inc. 278
Kastrinsky Mach. Co., Inc. .. 285
Kearny Mfg. Co. 184
*Kenyon & Son, D. R. 289
Kidde & Company Inc. Walter 263
Kohorn & Co., Ltd., Oscar 22
Koppers Co., Inc. 153

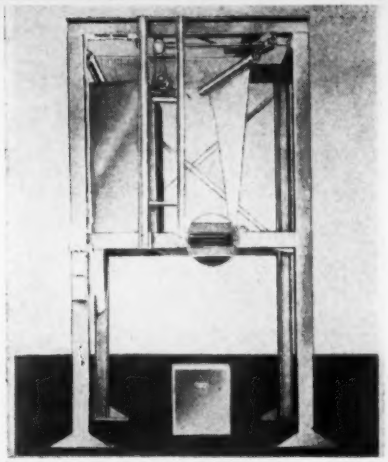
Lacy, Atherton, Wilson & Davis 282
Lambeth Rope Corp. 281
*Lane & Bros., Inc., W. T. 280
Laurel Soap Mfg. Co. 275
Lazenby & Co., F. A. 260
Leatex Chemical Co. 236
*Leighton Machine Co. 216
Lestershire Spool & Mfg. Co... 189
Lewellen Mfg. Co. 271
*Link-Belt Co. 43
*Loper Co., Ralph E. 288
*Lowell Shuttle Co. 204
Lukens Steel Co. and Divisions 46, 259
Lukenweld, Div. of Lukens Steel Co. 259
Lunkenheimer Co. 207

Magnetic Engineering & Mfg. Co. 252
McPherson Co., The 286
Meadows Mfg. Co. 28, 29
Medley System, Inc. 165
*Meinhard Greeff & Co. 274
Mellor, Bromley & Co. Ltd... 238
Merrow Machine Co. 283

Mount Hope WEFT STRAIGHTENERS

AUTOMATIC OR MANUAL CONTROL

PERFECTED AFTER 5 YEARS OF RESEARCH



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The management of this company has pioneered in weft straightening for 15 years and this company has been manufacturing weft straighteners on a limited experimental scale for about 5 years.

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We can supply various types of units from the Simple Housing Type Skewed Weft Straightener, with push button control but convertible to automatic operation, to the Complete Unit Type Skewed and Bowed Weft Straightener with automatic controls. These new post war Electric Eye Controls have been developed by the General Electric Company to operate with our new Weft Straighteners.

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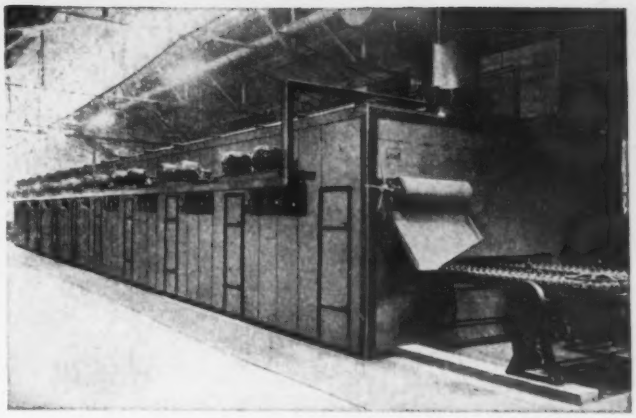

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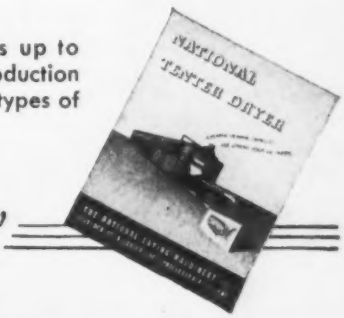
WITH THE

"NATIONAL" SR-4 TENTER DRYER

All features of the "NATIONAL" SR-4 contribute to the *greater drying capacity* . . . and *lower drying costs* . . . consistently maintained with this high-powered, flexible machine. Among them are the fine-mesh filter screen; adjustable volume fans; individual unit control; easy accessibility to all parts of dryer and frame. Compact design, for low head room. Rigid, durable construction, for long service life.

Learn how the SR-4 gives up to *twenty times* greater production than is possible with other types of tenter dryers.



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Print Goods Dryers

NATIONAL

Yarn Skein and Stock Dryers
Chemical Dryers

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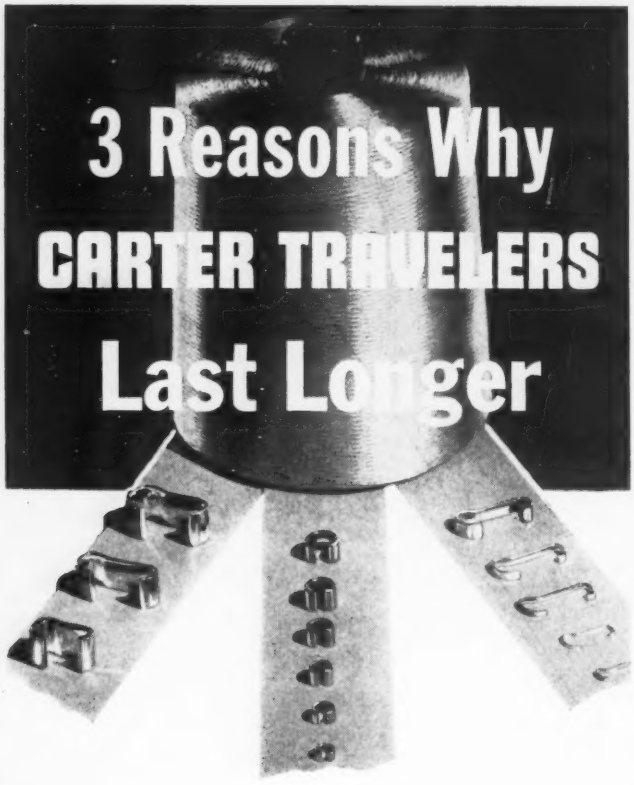

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CARTER TRAVELERS are manufactured under rigid laboratory control on modern precision machinery.

CARTER TRAVELERS are rigidly inspected before final packing and shipment.

Your Carter representative will gladly furnish samples of this superior traveler that gives better yarn quality at lowest cost.

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DIVISION OF
A. B. CARTER, INC.
GASTONIA N. C.

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R. D. HUGHES SALES CO., 1812 South Main Street, DALLAS, TEXAS
HUGH WILLIAMS & CO., 47 Colborne St., TORONTO 1, CANADA

*Milton Machine Works 276
Mobilift Corp. 81
Moisture Register Co. 288
*Monsanto Chemical Co. 65
Montgomery Co. 284
*Mt. Hope Machy. Co. 305
*Murdock & Geb Co. 279

*National Aniline Div. Allied Chemical & Dye Corp. 35
*Nat. Drying Machy. Co. 305
National Lead Co. 80
National Plastics, Inc. 230
National Plastics Prod. Co. 223
*National Ring Trav. Co. 281
*New Departure Div. General Motors 13
N. Y. & N. J. Lub. Co. 267
Norfolk & Western Ry. 247

*Oakite Products, Inc. 287
*Onyx Oil & Chemical Co. 198

*Pabst Sales Co. 262
Parks-Cramer Co. 264
Penick & Ford Co., Ltd. 289
Pennsylvania Salt Mfg. Co. .. 150
Perfecting Service Co. 277
*Perkins & Son, Inc., B. F. 40
Permutit Co. 239
Pike Co., E. W. 240
*Pittsburgh Corning Corp. 265
*Pittsburgh Plate Glass Co. Paint Division 241
Platt Bros. (Sales) Ltd. 237
Powell Co., Wm., The 36
Prince George Hotel 286
*Prince-Smith & Stells 56
*Proctor & Schwartz, Inc. ..193, 242
Progressive Mach. Co. 238

Railway Express Agency, Air Express Div. 190
Railway Supply & Mfg. Co. .. 250
Red Ray Mfg. Co. 272
Regnery Corp. 16
*Reiner Inc., Robert 251
Reliance Electric & Eng'g Co. . 71
Republic Steel Corp. 85
Reynolds Metals Co. 197
*Rhoads & Sons, J. E. 5
Richmond Oil, Soap & Chem. Co. 238
*Riggs & Lombard, Inc. 234
*Robaczynski Mach. Corp. ..20, 21
*Robert & Co., Associates, Inc. .....Inside Front Cover
Robison Processing Co. 226
Rome Soap Mfg. Co. 289
Ryerson & Son, Inc., J. T. ... 138

*Saco Lowell Shops 6
*Sandoz Chemical Works 17
*Sarco Co. 275
*Scholler Bros., Inc. 279
*Scott Testers, Inc. 273
Sinclair Refining Co. 96
Sipp-Eastwood Corp. 255
Sirrine Co., J. E. 288
*Solvay Sales Corp. 209
*Sonoco Products Co. 157
Southern Shuttles Co. 97
Square D Co. 140
*Standard-Coosa-Thatcher Co. .. 142
*Standard Fabricators Inc. 34
Standard Pressed Steel Co. ... 246
*Standard Soap Co. of Camden. 232
Stanley Works, The 194
Stearns Magnetic Mfg. Co. ... 258
Steelcote Mfg. Co. 271
*Steel Heddle Mfg. Co. 97, 235
*Sterling Ring Trav. Co. 232
Stonhard Co. 256
Sun Oil Co. 134
*Supreme Knitting Mach. Co. .. 219
Swift & Co. 199
*Sylvania Div. Amer. Viscose Corp. 148

Taylor Instrument Cos. 88
*Tennant Co., G. H. 210
Tennessee-Eastman Corp. 67
Terrell Co., Inc. 276
Texas Co. 2
Textile Banking Co. 206
Textile Machine Wks. 93, 94
Tide Water Associated Oil Co. 91
*Tompkins Bros. Co. 287
Torrington Co., The 73, 74
*Union Pacific R. R. 72

U. S. Radium Corp. 75
U. S. Steel Supply Co. 76
U. S. Testing Co. 218
*Universal Winding Co. .14, 15, 170

*Van Vlaanderen Mach. Co. .. 87
*Veeder-Root, Inc. ...Back Cover
Victor Ring Traveler Co. 48

Waldron Corp., John 277
Wallerstein Co., Inc. 186
Walton Laboratories, Inc. 220
*Westinghouse Electric Corp. .. 231
Lamp Division 31
Sturtevant Div. 26, 27
*Whitin Machine Works 37
Whitinsville Spinning Ring Co. 281
Whitman & Co., Wm. 270
Whitney Chain & Mfg. Co. 98
Wiesner-Rapp Co., Inc. 32, 33
Wildman Mfg. Co. 269
*Wolf & Co., Jacques. 217
Wolstenholme Co., The 281
*Worthington Pump & Machy. Co. 39

PROFESSIONAL SERVICES

Barnes Textile Asso. 274
Harte, John J. 284
Hermann, Roy Dr. 236
Lacy, Atherton, Wilson & Davis. 282
Lancaster, Alwine & Rommel... 302
Loper & Co., R. E. 288
McPherson Co. 286
Martin, Harold K. 302
Robert & Co. .....Second Cover
Sirrine Co., J. E. 288

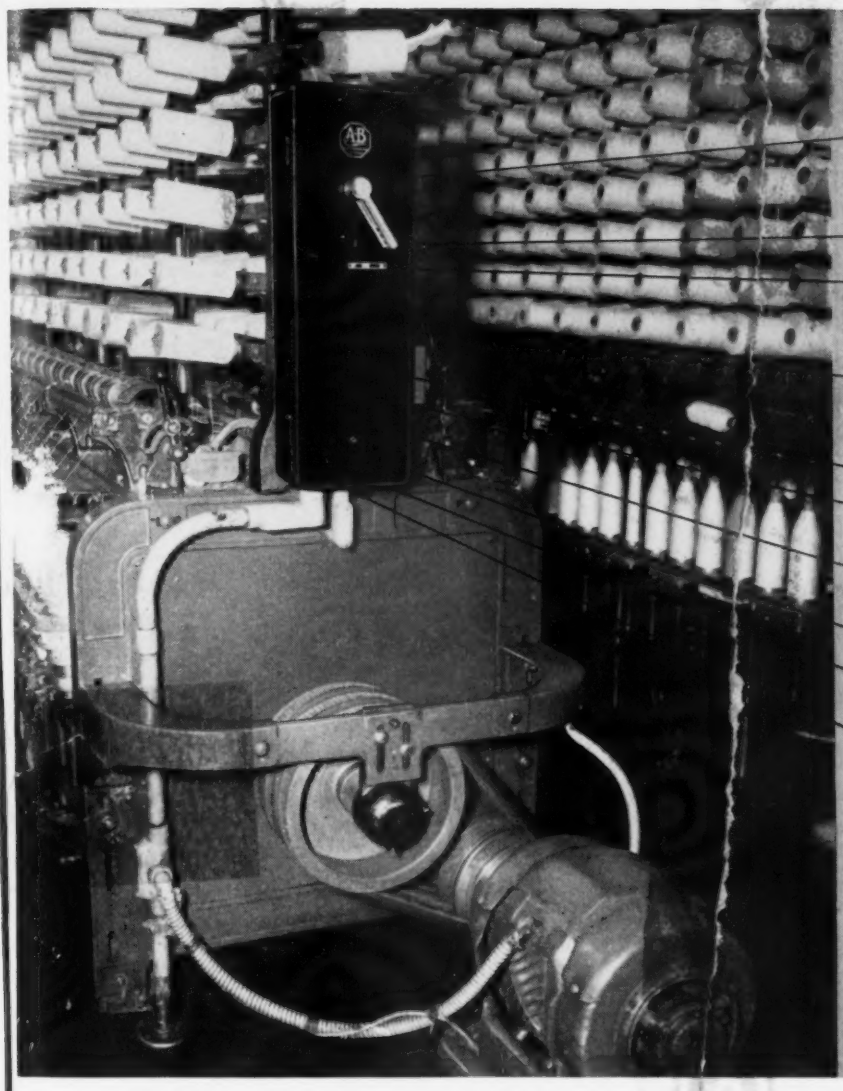
■

SEARCHLIGHT SECTION
(Classified Advertising)

EMPLOYMENT
Positions Vacant. 292
Selling Opp. Offered. 292
Positions Wanted. 302
Employment Services. 292
SPECIAL SERVICES. 302
BUSINESS OPPORTUNITIES Offered 302
EQUIPMENT (Used or Surplus New) For Sale. 293-303
WANTED
Equipment 301-302
Miscellaneous 302

ADVERTISERS INDEX

American Air Compressor Corp. 298
Bay State Textile Co. 298
Blank, Moe. 294
Blank Co., Inc., A. & M. 303
Beaunit Mills Inc. 298
Bresani, Joseph. 294
Cadgene Machinery Co. 296
Careful Co., Samuel. 303
Chemical Service Corp. 302
Collins & Aikman Corp. 296
Consolidated Products Co., Inc.. 295
Du-All Mfg. Co., The. 303
Eagle Industries Inc. 301
Gaines Textile Mach. Co. 300
Heinman Cor., Oscar, Div. of Aetna Industrial Corp. 303
Linderson, H. E. 298
Machinery Liquidating Co. 293
McCaffrey & Son, L. J. 294
McCloskey, Inc., John J. 300
McDowell Associates, Inc. 297
Maverick Mills. 303
Miller Machinery Co. 303
N. Y. State Institute of Applied Arts & Science, The. 292
New England Products Co. 302
New Orleans Machinery Co. 298
Pickford Mills Inc. 301
Rabinowitz & Sons, William... 299
Raymond Service, Charles P. 292
Republic Textile Equipment Co. 294
Rock River Woolen Mills. 300
Royal Loom Exchange. 302
Sayal & Sons. 298
Schwartz Machinery Corp., Sam. 296
Seckler, Eugene. 303
Siegel, M. 302
Solomon & Co., Inc., Robert... 300
Speizman Co., Inc., Morris. 303
Stave & Zisblatt. 296
Stephenson, Harry. 300
Textile Auxiliaries. 296
Triangle Processing Machinery Co., Inc. 298
Yantic Woolen Mills, Inc. 294
Wheeler Co., Frank W. 300



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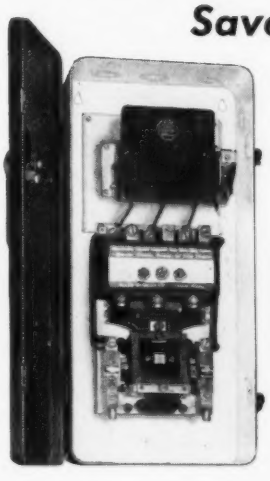

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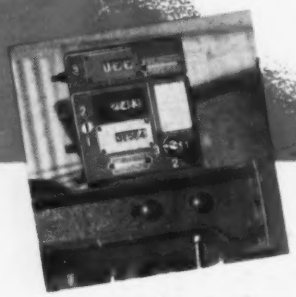

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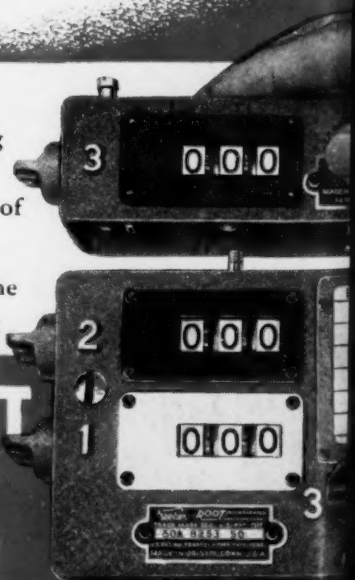

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